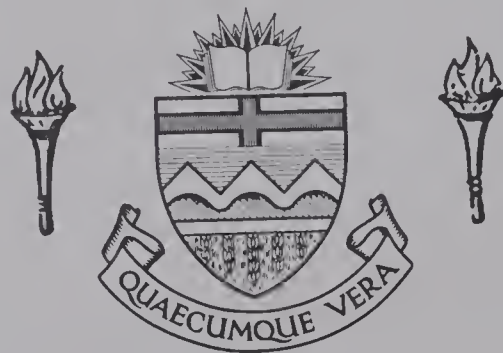


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THE UNIVERSITY OF ALBERTA

THE NEW ZEALAND PETROLEUM ACT, 1937

TIME FOR REVISION

by



ROBERT CRAWFORD

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH  
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE  
OF MASTER OF LAWS

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Thesis  
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27

UNIVERSITY OF ALBERTA  
FACULTY OF GRADUATE STUDIES

The undersigned certify that they have read, and  
recommend to the Faculty of Graduate Studies for acceptance,  
a thesis entitled The New Zealand Petroleum Act 1937:  
Time for Revision submitted by Robert Crawford in partial  
fulfilment of the requirements for the degree of Master  
of Laws.



## ABSTRACT

The New Zealand Petroleum Act, 1937 was passed to make better provision for the encouragement and regulation of mining for petroleum, and to provide for matters incidental thereto. At that time the legislation was comparable to similar oil and natural gas legislation found elsewhere in the Commonwealth. While the legislation has remained inert the petroleum industry has developed to become the principal supplier of energy in the automized world of 1970. Foreign legislation has altered to accommodate the new concepts attendant to the peculiar qualities of petroleum and the new techniques of the petroleum industry. But in New Zealand the 1937 Act endures largely intact.

This thesis calls for a revision of the principal Act dealing with petroleum leasing in New Zealand. At the present time the exploration activity in New Zealand is at an all-time high. If new legislation is not enacted in the near future, vested interests might well look on later alterations to the Act as being of a confiscatory nature rather than as being remedial of ills caused by old age.

The legislation is compared in various aspects (terminology, tenements and leasing stages, license rights and obligations, ministerial discretion and flexibility,





the difference between oil and natural gas, conservation, offshore regulation, financial provisions, government participation, domestic needs, and the training of nationals,) to other current foreign legislation to see how these aspects have been approached in foreign contexts, following which general submissions have been made. Comment has also been made on the issue of foreign investment, for it is felt that legislation affecting oil and gas leasing in New Zealand cannot be considered without some overview on possible economic repercussions.



## ACKNOWLEDGEMENTS

My initial thanks are to Dr. A. R. Thompson, now of the Faculty of Law, University of British Columbia, and Professor M. J. Sychuk, now of the Faculty of Law, University of Alberta for introducing me to the complexities of oil and gas law. Anyone familiar with Dr. Thompson's writings in the field will instantly recognize my debt to him. Also his supervision and guidance (in a very busy year) throughout the writing of the paper was a steady source of encouragement, and I express my deepest gratitude.

My thanks also to Dr. E. J. Hanson of the Economics Department of the University of Alberta for his pertinent comments on the draft, particularly the errors in the economic segments of the paper.

The bibliography lists the many sources who so kindly supplied me with information in 1969 and 1970 and must have wondered where the information disappeared to. My especial appreciation is directed to the personnel in the departments of the New Zealand government who so freely gave of their time to answer my correspondence. My only regret is that I may not have done justice to the wealth of information provided. Associate Professor H. W. Wellman, of the Department of Geology, Victoria University of Wellington, New Zealand, directed my thoughts to some of the more contentious aspects of New Zealand's present petroleum leasing policies and I trust those thoughts have not been presented in diluted form. Mr. Lloyd Heaslip, of the Parliamentary Library at Ottawa provided every amenity for me while I searched the Parliamentary Library's copy of the New Zealand Hansard in January, 1970, and I express my thanks for his co-operation.

Finally my thanks to G.A.L., cartographer, in the Geography Department of the University of Alberta who prepared the map infra, the typists who rendered this script legible, and my present employers, McQuarrie, Hunter & Company of New Westminster who have generously indulged their articulated student's academic responsibilities.

The ideas expressed herein have perhaps been oversimplified, and the sources cited must be absolved from any responsibility for any errors or opinions in the text.



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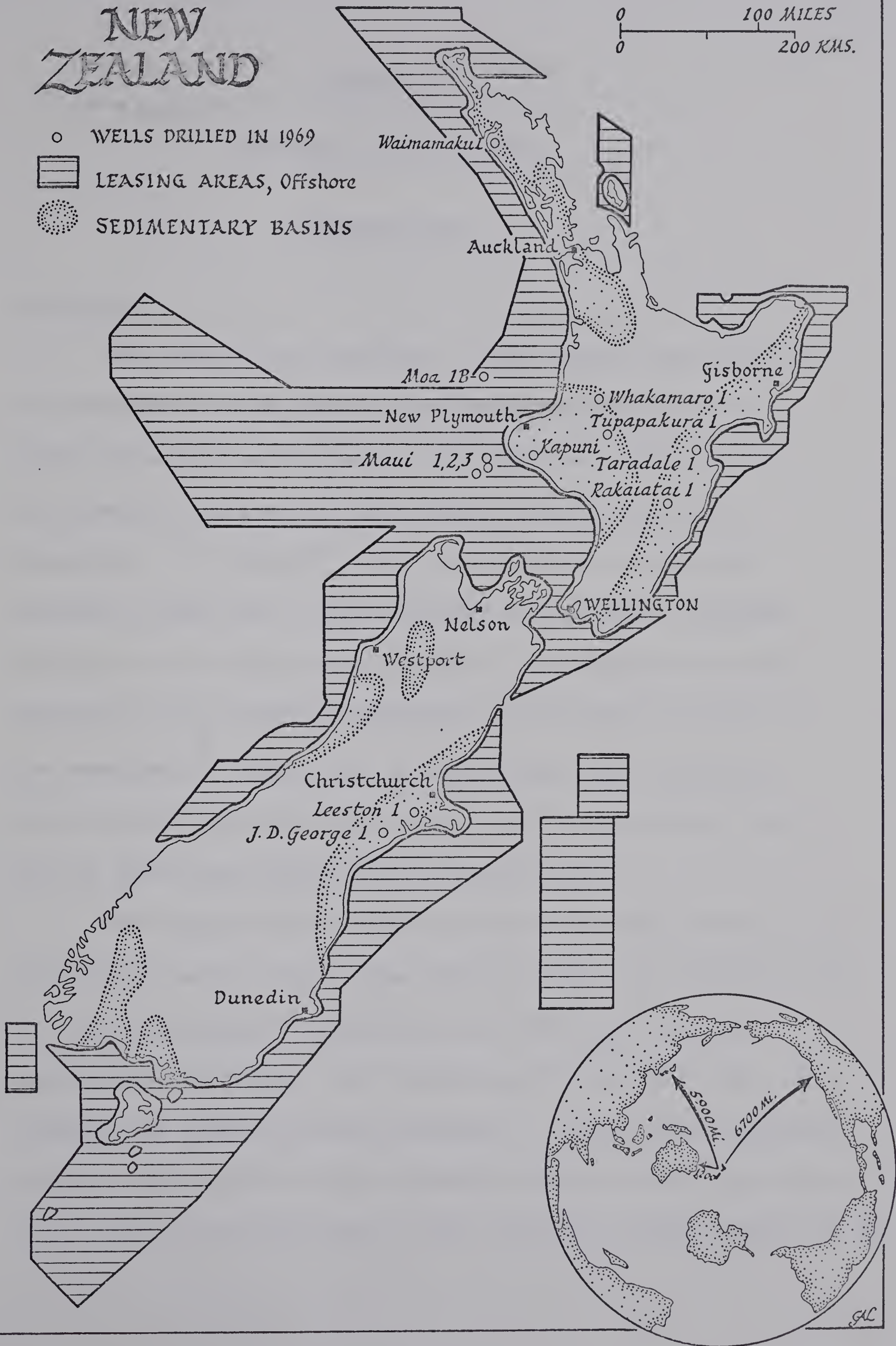
# NEW ZEALAND

0 100 MILES  
0 200 KMS.

○ WELLS DRILLED IN 1969

▨ LEASING AREAS, Offshore

● SEDIMENTARY BASINS







## CHAPTER I

### PETROLEUM IN NEW ZEALAND

#### INTRODUCTION

##### Petroleum

The search for petroleum in New Zealand has engaged the attention of prospectors for over one hundred years. Today attention is focused on the appraisal wells on the continental shelf some thirty miles offshore from New Plymouth. At present<sup>1</sup> the wells appear to confirm the success of Maui #1. Technological and economic problems have yet to be fully answered but it would appear that New Zealand's first modern commercial oil discovery is about to be developed.<sup>2</sup> Maui, who in Maori mythology lifted the North Island from the ocean depths, may be heralding a new era in petroleum exploration in New Zealand.<sup>3</sup>

The importance of the discovery to a small industrially developing nation such as New Zealand cannot be underestimated. In 1966 oil assumed the position held by coal since the Industrial Revolution, that of the world's primary fuel, as measured in terms of primary energy.<sup>4</sup> It has been predicted that during the 1970's oil's primary energy growth rate would slow and that the position of coal would be further eroded by the



massive infusion of natural gas into world markets.<sup>5</sup>

Nuclear power is as yet an energy source for the turn of the century.

The Western nations constitute a high energy consuming civilization, and cheap fuel sources contribute to their high standards of living. Petroleum, as gasoline or natural gas, provides fuel for transport and heat for industrial and domestic usage. Hydrocarbon by-products are finding ever increasing uses in daily living. But essentially the importance of an oil strike lies in the economic repercussions that the discovery and its development has on the country which claims possession and ownership over the hydrocarbon deposit. A glance at the recent history of petroleum shows the tremendous late nineteenth century boom in the United States, culminating in the discovery of the great East Texas field in 1930, and then the gradual development of areas outside the United States, resulting in the present exploitation of the huge Middle East fields. While the effect of hydrocarbons in the United State's economy is not to be underestimated, the effect of discovery is more dramatically illustrated by the economic growth of the Middle East nations since 1950.

The discovery of petroleum, as with other natural resources, can provide more than one input to a nation's



economic growth. But oil and gas are especially useful,<sup>3</sup> for they supply energy for industrial production as well as raw materials. If production is so prolific as to enable export of oil, gas, and raw materials, foreign exchange and overseas capital are not only saved but provided for industrial advancement. Further internal economic and social development is dependent on factors such as the skilled labour and technical know-how available.

#### The New Zealand Setting, and Foreign Investment

Since the extension of British sovereignty to New Zealand in 1840, New Zealand has followed an almost classical colonial economic path, even though she has spoken with an independent voice in international affairs since 1935.<sup>6</sup> Because of its geographical attributes and cultural ties, New Zealand became a larder for Great Britain, exporting vast amounts of butter, cheese, wool and meat to the London markets.<sup>7</sup> The inevitable effect has been to make New Zealand economically vulnerable to the trade cycles that affect New Zealand's agricultural products. In time, the historic ties have gradually weakened. The reality of New Zealand's economic dependence and trading imbalance was finally brought home to the public of New Zealand in 1962 when the United Kingdom proposed entry into the European Common Market. Since 1962 government incentive





and native enterprise have seen a gradual broadening of New Zealand's economic basis and a spreading growth in her international trade.<sup>8</sup>

In agricultural development New Zealand may claim to be one of the most advanced nations, and the 2.7 million population, thanks to government philosophies of income distribution, have accordingly enjoyed a high standard of living and prosperity.<sup>9</sup> But industrially New Zealand must be classed as developing and thus the exploitation and development of her natural resources is vitally important to the nation's continued prosperity. As the under-developed and developing nations have and are illustrating, intensive development of natural resources is an integral step in the growth of industry, and the eventual realization of a balanced economy.

The development of New Zealand's natural resources and industrial sector is dependent upon overseas investment. By definition the under-developed and developing countries rarely have the necessary internal capital and technology to find and develop natural resources, and the governments are forced to attract foreign capital and expertise. Thus delicate questions of sovereignty over natural resources can arise,<sup>10</sup> and recent times have seen the developing nations harden the concept into an international right in





the United Nations Declaration on Sovereignty over Natural Resources.<sup>11</sup>

The inflow of overseas investment capital depends on the attractiveness of the investee country as an area for investment. As the Prudhoe Bay lease sales have illustrated,<sup>12</sup> the best incentive of all is the discovery of a natural resource in commercially exploitable quantities, but this of course presupposes some initial exploration. The overseas investor must therefore investigate the various factors that may influence his foreign investment decision. The factors are many and varied and treated with different emphasis by different investors. A common list of investment factors would probably include political structure and stability, the legal system, taxation laws, currency controls, means by which the investment may be utilized, e.g., company laws, laws affecting the natural resources, possible markets, labour, and transport and communication systems. These factors will be considered later.<sup>13</sup>

Consideration must, however, be given to a psychological factor that was described in the following manner by Professor E.A. Rudd in an address given at the Opening Session of the New Zealand Section of the Eighth Commonwealth Mining and Metallurgical Congress in 1965:<sup>14</sup>



The disadvantage which I can imagine is a hypothetical one. It could be that New Zealanders have an apathy or indifference or frankly do not believe in the possibility of a mineral industry. If this is true this could be the deciding factor of the whole list I have submitted.

And he proceeded to make a comparison with a geological cousin in the Northern Pacific, namely Japan, to illustrate the possibilities. Although the idea was expressed in different surroundings, Dr. Sutch saw the same problem and wrote that same year:<sup>15</sup>

The crisis for New Zealand in the mid-1960's is not that the basis of our wealth is suddenly gone ... Rapid and radical action is needed to readjust our economic structure and institutions to meet our new development needs: the building of industry to supply raw materials, components and capital goods, and the basing of our economy and society on a broad range of skills. In all too many respects we have been outpaced by a large part of the developed world and we may, for all we know, be in the process of being outstripped by many developing countries. These latter at least recognize their problem - the need to develop rapidly - and they have the will to try to solve it.

The crisis is one of time and of attitude. It lies in a failure to understand fully the fact and nature of a crisis that has already arrived; and a failure to meet it quickly enough.

Such an attitude may have been more real that hypothetical in the 1950's when views such as "whilst it is unlikely that precious metals will ever again fill the proud place they once held in our industrial scene..." and "the result of one hundred years prospecting and development has shown our mineral resources to be limited ..." were



propounded at the 1953 Mining and Metallurgical Congress. At that time reports on mineral occurrence had proved not to be as promising as hoped and the successive discouragements were sufficient to remove most overseas investment capital from mining in New Zealand. The theory propounded was that mineral resources, especially metallic minerals, were not likely to be important in New Zealand.<sup>16</sup>

However, the 1960's have seen the national realization that thorough exploration and evaluation of New Zealand's natural resources is an essential step in economic progress. In November, 1962, a Minerals Resource Committee was formed as a sub-committee of the Council of Scientific and Industrial Research.<sup>17</sup> Its terms of reference included the determination of the direction of mineral investigations in relation to financial resources and the possibilities of early economic development. Also it was given the responsibility to encourage co-ordination between government and private organizations in the search for and development of minerals of national industrial importance. Two principal government entities can be shortly described.

The New Zealand Geological Survey is, in its own eyes,<sup>18</sup> somewhat unique, for in 1927 it divorced itself from the Mines Department, the traditional home of almost





all geological surveys, and became a branch of the Department of Scientific and Industrial Research, a State Department devoted entirely to research and its application. The Geological Survey's principal work is to prepare geological maps of New Zealand and to determine the country's geological structure and geological history. The Survey also studies and helps assess the country's mineral deposits, geothermal steam, and underground water resources, and gives advice on geological problems encountered in state and private civil engineering projects such as the construction of hydro-electric dams, bridges, tunnels, roads and building foundations. An Economic Section of the Geological Survey is responsible for the investigation of potentially valuable deposits, and a vigilant study is made of the changing overseas economic emphasis.<sup>19</sup>

The Mines Department which was established in 1878, is responsible for the administration of legislation covering the mining of gold, coal, petroleum and all other minerals and, in addition, the operation of quarries including excavations for hydro-electric works, the driving of tunnels, the sinking of shafts, etc. These two bodies are concerned with the day to day development and supervision of New Zealand's metallic and non-metallic resources.

To return to the 1960's; in 1965 the Mining and





Metallurgical Congress produced two volumes concerning New Zealand that described geological, mining, metallurgical and economic aspects of New Zealand's mineral development.<sup>20</sup> In concert with the Australian section of the Congress, an optimistic forecast was propounded.

In 1968 the National Development Conference set up a Minerals Committee. Among its terms of reference were the following:<sup>21</sup>

In the light of:

- (a) The objectives of the National Development Conference; and
  - (b) The desirability of optimum economic exploitation and development of New Zealand's mineral resources, especially of those which are likely to achieve net earnings or savings of overseas funds.
- (1) To examine the significant industrial mineral resources of New Zealand and to identify the steps necessary to expedite the exploration development and processing of these resources during the periods ending 1972-73 and 1978-79.

In May 1969 the Committee Report observed that "the current high level of mineral prospecting and exploration is unprecedented in New Zealand and has lead to greatly increased and important mineral discoveries and developments in the 1960's. These range from the new significant geothermal steam project, first stage of which was completed in 1960, to the prospecting of a 6-million ton sulphur deposit



recently at Rotokawa, in the Taupo area."<sup>22</sup> As has been the overseas experience, the increased level of mineral prospecting and exploration has resulted in greatly increased mineral discovery, and consequently furthered overseas interest in New Zealand's mineral resource and industrial development potential. The Committee Report, while buoyant in tone, listed thirty-five recommendations, several of which concerned the petroleum industry. The work of the Committee was of such value that the Mineral Resources Committee was reconstituted to act as the continuing body for the Minerals Section of the National Development Committee.

The latter part of 1969 has seen further developments in New Zealand's mineral resources, but without doubt, the most significant event has been the discovery and appraisal of the Maui offshore oil and gas field. It remains to discuss the importance of petroleum in the New Zealand context.

#### Petroleum in New Zealand

The importance of oil and gas as a primary source of energy has been mentioned. A few specific figures reveal how much of the energy market hydrocarbons now occupy. In the United States the figure touches 75 percent,<sup>23</sup>



while in the United Kingdom<sup>24</sup> hydrocarbons are becoming the principal energy sources. In Asia and the Far East, petroleum supplies 60 percent of the energy consumed in the ECAFE region and it is expected to assume 75 percent of the work burden within five years.<sup>25</sup>

The 1950's and 1960's have seen a world wide increase in hydrocarbon demand. New Zealand has been no exception, as the Fuel and Power Committee of the National Development Committee noted in May 1969.<sup>26</sup> Between 1950 and 1967 petroleum's share of the New Zealand consumer energy market increased from 38 percent to 58 percent.

In common with overseas predictions, the forecast energy usage to 1978, including the use of natural gas from the Kapuni field, indicates a levelling off of hydrocarbon consumption. It may be noted that the other primary power source in New Zealand is energy produced from hydro-electric power stations.

The reliance on petroleum as an energy source, especially in regard to transport, has been recognized as a matter of crucial strategic importance in time of war. The Middle East conflicts, with their immediate effects on the major world oil reserves and oil transport systems, have resulted in oil industry managements turning to other oil prospective areas, success attending new ventures





in Alaska and West Africa. Giant tankers have solved the Suez Canal cutoff. The American oil interests have always argued that strategic requirements justified their special tax advantages such as depletion allowances in arguments against taxation departments. The strategic implications of an indigenous oil supply have not been disregarded in New Zealand and parliamentary members have argued the need for local supplies of oil "in the event of hostilities abroad."<sup>27</sup>

The principal effect of the reliance on petroleum in New Zealand today is seen in the economic sector. Mention has been made of New Zealand's fragile balance of payments situation due to the reliance on her agricultural exports, which are open to the vagaries of the trade winds. Petroleum is New Zealand's largest single import constituting some twelve percent in value of total imports.<sup>28</sup>

The crude and partly refined petroleum is used as feedstock for New Zealand's main refinery<sup>29</sup> situated at Marsden Point near Whangarei. The refinery went onstream in 1964. It was designed to utilize a wide variety of crudes. It is principally a catalytic reforming type and in 1969 was refining 63,000 b/d. The refinery was originally designed to meet New Zealand's 1967 demand for major products, including gasoline, gas and diesel oils, fuel oil and asphalt. However the refinery has operated at





capacity since it opened, and already the New Zealand market requires the import of motor spirits and gas oil to supplement the refineries production. It is proposed to double refining capacity in New Zealand and so avoid the importation of the refined petroleum products.<sup>30</sup>

Marsden Point may be seen as part of a world wide movement toward establishment of refineries in consuming areas.<sup>31</sup> Since World War II the oil importing countries have been trying to raise the domestic content in the price of petroleum products.<sup>32</sup> It may be noted, in the words of a prominent economist<sup>33</sup> that:

In consequence, the price of crude oil began to take on more significance from the point of view of both importing and exporting countries, although most refineries were owned by the major integrated companies producing the crude oil and the 'price' (for the companies) was still an internal transfer price.<sup>34</sup>

Regardless of the effect the building of the refinery had on the owning consortium, it was of importance to New Zealand, for it was estimated at the start to save New Zealand some \$8 million annually in foreign exchange outlays for oil imports.<sup>35</sup> The utilization of Kapuni's condensate production is estimated to save New Zealand more than \$2.8 million annually in foreign exchange.<sup>36</sup> As an incentive, the government will pay 75¢ bbl. for the condensate delivered to Whangarei, and it is expected the 43° - gravity



condensate producing at 3,500 b/d will furnish about 6 percent of the country's oil demands.

New Zealand has had a traditionally high demand for motor gasolines, aviation gasoline and turbine fuel. The growing industrialization will lead to an increased demand for furnace fuels although government demand is falling as the railways are turning to diesel engines. The demand for hydrocarbons thus makes the discovery of the Maui field of great importance to New Zealand. As the Mineral Committee stated:<sup>37</sup>

It is estimated that from the mid to late seventies New Zealand will have to import crude oil to the value of perhaps some \$65 million per annum unless a substantial discovery is made. A field containing 500 million barrels of recoverable oil could, over several years, produce at a rate sufficient to meet the country's requirements. The value of such a discovery in terms of foreign exchange savings would therefore be of the order of \$65 million per annum.<sup>38</sup>

The Shell consortium have been cautious in their announcements as to possible future development of Maui, but the discovery has had the desirable effect of bringing New Zealand's petroleum potential to the oil industry's attention,<sup>39</sup> a potential that has a history as old as the nation.



## FOOTNOTES

### CHAPTER I

- 1 August, 1970.
- 2 Encouraging indications of hydrocarbons were encountered in the 11,515 foot deep Maui #1 well on the 4th March, 1969. Appraisal wells followed later in the year when the Shell consortium brought a semi-submersible Sedco 135F drilling rig from offshore British Columbia into the Taranaki operation. The consortium were cautious in their announcements but added that "the offshore Maui field contains substantial reserves of gas and condensate, certainly many times that of the onshore Kapuni field": Oil and Gas Journal, March 2, 1970, p. 32. The aggregate potential of Maui #3 was 87.5 MM cfd of gas and 4,000 b/d of condensate. Negotiations between the New Zealand government and the Shell consortium as to the potential use of the Maui field have been started.
- 3 The Shell consortium also discovered a gas-condensate field in 1959 which went on stream February, 1970 to provide gas for eleven North Island cities and some feedstock for the refinery at Marsden Point.
- 4 International Petroleum Encyclopedia, 1968, (Tulsa, The Petroleum Publishing Co., 1967), pp.5-9.  
1957 Coal 52% Oil 31% Natural Gas 12% Hydropower 5%  
1967 Coal 37% Oil 41% Natural Gas 16% Hydropower 6%
- 5 Ibid.
- 6 J. L. Robson, New Zealand: The Development of its Laws and Constitution, (1967), p. 16.
- 7 In the period 1956-1961 the annual average of New Zealand's exports to the United Kingdom as a percentage of exports to all countries in primary products read thus: butter 93, cheese 92, other milk products 46, beef and veal 13, lamb and mutton 94, other meat 63. These products accounted for 57 percent of total export trade: Table 4, A.N.Z. Bank Trade Bulletin, April, 1967.
- 8 New Zealand Official Yearbook, 1969, pp. 607-608:





In 1950 the United Kingdom took 66 percent of New Zealand's exports but at the year ended June, 1967, its share had fallen to 44 percent.

There had been a marked expansion of New Zealand's overseas markets, notably in the United States and countries bordering the Pacific. For example, exports made to Japan have increased from \$6.2 million in 1953 to \$63.2 million in the year ending June, 1967.

- 9 U.S. Department of Commerce, Overseas Business Reports 68-23, Basic Data on the Economy of New Zealand, March, 1968, p. 4:

The average per capita income is approximately U.S. \$1,800, the highest in the world. Even though the population is relatively small, an even distribution of income coupled with the relative sophistication of the population generates a demand for all types of goods and services.

- 10 The writing on this topic is extensive. See the references found in CH. V; infra, The Foreign Investment Issue.
- 11 December 14, 1962. See CH. II of Permanent Sovereignty Over Oil Resources, M.A. Mughraby, (1965), for the development of the concept.
- 12 Receipts totalled (U.S.) \$900 million for the 1st sale.
- 13 CH. V, infra, pages 159 et seq.
- 14 Eighth Commonwealth Mining and Metallurgical Congress, Volume VII, Proceedings of New Zealand Meeting, Wellington 1965, p. 6.
- 15 W.B. Sutch, Colony or Nation?, (1966) p. 183
- 16 Supra n. 14, Paper 227:1,2 by R.W. Willet, The Role of the N.Z. Geological Survey in Economic Geology.
- 17 Id., 227:3.
- 18 Ibid.





- 19 Supra, n. 8, pp. 468-69.
- 20 Supra, n. 14, Vol. IV, Economic Geology of New Zealand, G. F. Williams.
- 21 Minerals Committee Report to Second Plenary Session, National Development Conference, May 1969.
- 22 Ibid, p. 9.
- 23 Twentieth Century Petroleum Statistics 1969 (De Golyer and McNaughton, Texas: 1969). Percentage of total calculated consumption contributed by each mineral energy fuel and electrical energy from water and nuclear power in the United States. United States Bureau of Mines.
- | 1968 Crude Petroleum | Natural Gas<br>and<br>Gas Liquids | Electric<br>Water Nuclear | Coal | Total  |
|----------------------|-----------------------------------|---------------------------|------|--------|
| 40.1                 | 34.7                              | 3.7                       | 0.1  | 21.4   |
|                      |                                   |                           |      | 100.00 |
- 24 Oilweek, April 13, 1970, p. 35.
- 25 Petroleum Gazette, March, 1970, p. 25.
- 26 Fuel and Power Committee Report to Second Plenary Session, National Development Conference, May 1969.
- 27 New Zealand Parliamentary Debates, 1937, House of Representatives, Mr. Webb introducing the Petroleum Bill, p. 1037. Dr. McMillan 1939, p. 353. Mr. Aderman 1955, p. 2069.
- 28 For year ending June 1967 total imports cost \$752,206,000 c.d.v. of which petroleum and petroleum products comprised \$44,863,000 c.d.v. (\$57,276,000 c.i.f.): New Zealand Official Yearbook, 1969, p. 658.

The petroleum and petroleum products import figures for the period July 1968 - June 1969 were \$56,246,496 c.d.v. (\$72,771,402 c.i.f.) A principal item was "petroleum: crude and partly refined", 1,685,025 tons of crude and 1,045,066 tons of partly refined petroleum being imported at an estimated cost of \$33,249,616 c.d.v. (\$46,253,988): Department of Statistics, Wellington, New Zealand.

- 29 Ownership of the plant is 19.2% Mobil, 17.2% Shell,



15.1% B.P., 8.6% each by Caltex and Europa, and 31.4% of domestic investment.

- 30 Correspondence with Department of Industries and Commerce, 10/11/1969. It is estimated that any such expansion would not be completed before 1973.
- 31 Edith T. Penrose: The Large International Firm in Developing Countries, (1968), p. 183.
- 32 Michael Tansar, The Political Economy of International Oil and the Underdeveloped Countries, 1969, p. 136 et seq.
- 33 Supra n. 31, p. 183.
- 34 Ibid. A footnote with the quotation stated that Shell International has itself pointed out that in 1950 most of the trade from export terminals outside the U.S. 'was confined to integrated companies' and that there was a 'consequential absence of prices established by arms length trading...' Current International Oil Pricing Problems (August 1963), p. 5.
- 35 G.H. Barrows, International Petroleum Industry, Vol. II (New York, 1967) p. 149.
- 36 H.R. Katz, Petroleum Developments in South West Pacific Region during 1967, 52 A.A.P.G. Bulletin, 1903.
- 37 Supra, n. 26, p. 14.
- 38 On present refining capacity, if it were possible to substitute all imported refinery feedstocks by domestic crude, the annual saving in foreign exchange would be in the order of \$30 million.
- 39 "Offshore Report", Oil and Gas Journal, March 16, 1970, p. 129: Adding fire to the smoke was last year's first offshore oil strike in New Zealand, a development that stretched the offshore net to include the smallest South Pacific Islands.



## CHAPTER II

THE HISTORY OF THE SEARCH FOR PETROLEUM IN  
NEW ZEALAND AND THE PETROLEUM LEGISLATIONIntroduction

The history of the search for oil and the concurrent legislation falls into four eras: 1839-1911, 1912-1937, 1937-64, and 1964 to the present day. In the main, it has been a history marked by high hopes and little serious understanding of the complexities of oil exploration. But the advent of some 'major' oil companies since 1940 has resulted in highly scientific exploration, perhaps not as intensive as the hopeful onlooker may have wished, but exploration that is now realizing the aspirations born in the early years of New Zealand's history.

1839 - 1911

In pre-European times, surface seepages of oil and gas were noticed by the Maoris. The occurrence of oil near New Plymouth (the Moturoa oilfield) was ascribed by them to the decomposition of a sea monster.<sup>1</sup>

On the North Island's East Cape seepages were found and graphic place names between Te Araroa and Mahia such as Te Hau-o-te Atua (breath of the Gods) and Te Ahi-o-te Atua





(fire of the Gods) bore witness to the traces of the oil.

The early settlers knew of the seepages too. In 1839 Dr. Ernst Dieffenbach took samples of oil from three oil pools at sea about one mile offshore near Moturoa.<sup>2</sup> Seepages were reported in Poverty Bay (near Gisborne) in 1865 and in 1897. N. Mortensen noted the third main occurrence at Kotuku in Westland.<sup>3</sup> Minor seepages and gas shows have been recorded in other sedimentary areas of both islands. (See map).

The risk and glamour of the search for oil was established in the colony's early years. Drilling for oil in New Zealand began in 1866, a mere seven years after "Colonel" Drake's Titusville discovery marked the beginning of the modern American oil industry. The "Alpha" well, situated on the New Plymouth waterfront, was dug by hand for the first forty feet or so, and then drilled to 180 feet. Sadly the production from New Zealand's first oil well was not so spectacular as that of the Pennsylvania hills, for only some 50 gallons of oil per week were skimmed off the water. The Taranaki Petroleum Company was formed with a capital of £10,000 to develop the field but although Alpha yielded up to 80 gallons a day at one stage in 1866, the initial success was followed by three almost dry holes, and the consequent liquidation of the company





in 1868.

Government interest in the colony's natural resources was manifest early. The New Zealand Geological Survey was formed in 1865 and when a Department of Mines was created in 1878 the Survey became part of the Department. Prior to 1878 there had been an Under-Secretary for Goldfields whose principal duty was to prepare and present to Parliament an annual report on the goldfields, the office being previously held by Under-Secretaries of the Department for Public Works and the Lands Department.<sup>4</sup> However the colony's early statutes evinced no legislative interest in petroleum.

Exploration on the eastern side of the North Island began in the 1870's. The Poverty Bay Oil Co. began exploratory drilling at Waitangi Hill in 1874. Their deepest hole reached 210 feet from a 100 foot shaft, without success. The holdings were taken over by the South Pacific Petroleum Co. who between 1880 and 1884 sank nine bores from 100 to 1,321 feet. In 1888 the Mines Department reported several oil and gas seepages along the New Plymouth beach north-east of the breakwater and extending over 300 yards (not exactly Louisiana slicks, but then without Louisiana pollution problems either!). The South Island saw exploration for underground oil start at



Greymouth in 1899.

In 1891 a new consolidation of the Mining Act<sup>5</sup> failed to mention petroleum but this lacuna was promptly remedied in the Mining Act Amendment 1892 which stated in Section (3) that "in respect of mineral licenses and leases the word 'mineral' in relation to mining purposes shall be deemed to include petroleum and all other mineral oils". No other alteration was deemed necessary to accommodate the newest additions subject to the administrations of the Mines Department. No change was effected in the consolidations of the Mining Act which followed in 1898 and 1905, nor in 1908 when the Statutes of New Zealand were consolidated.

The prospectors rights under the 1908 Act (ss.67-85) may be summarised. The tenements granted were prospecting warrants, prospecting licenses, (the former being a non-exclusive right, the latter an exclusive right to prospect on the land to which it related), mineral prospecting warrants authorizing the holder to prospect for any one specified mineral on Crown lands specified in the warrant not exceeding an area of ten thousand acres, and mineral leases which could cover up to one thousand acres in a continuous block. Prospecting and mining provisions applied to Crown lands and other lands as specified in the Act. Prospecting licenses and prospecting warrants terminated



after one year and then required fresh application, unless the prospector obtained a tunnel prospecting license which continued in force for two years, and was thereafter renewable annually. An ordinary prospecting license covered one hundred acres, a tunnel prospecting license one hundred and fifty yards measured on each side of the middle line along the whole length of the tunnel. Mineral prospecting warrants lasted for five years and enabled a mineral lease to be obtained, which could endure for a term not exceeding sixty-three years. Orders in Council regulated the rent and royalty payable. In sum, the Act was entirely concerned with hard mineral mining. The gold rush days were still recent memories.

In the early 1900's the Shell group began its exploration activities in New Zealand, drilling two wells near Weber in Hawkes Bay and a further three at Kotuku, near Lake Brunner. All were dry.

The New Plymouth area saw Taranaki Petroleum Co. Ltd. encourage public interest in oil with the completion of the "Birthday" well at 2,750 feet in 1910. An initial flow of 10 b/d was found with natural gas, but again there was no steady production.

The year 1911 finally saw clear legislative recognition of the fact that petroleum was different from the hard





minerals. An amendment to the Mining Act<sup>6</sup> removed "petroleum and other mineral oils" from the Act's definition of minerals and made provision for the Governor-General, by Order in Council gazetted, to declare that any of the provisions of the principal Act apply to prospecting and mining for and the storage of petroleum and other mineral oils and of natural gas. The next provision struck at landowners' rights, for it stated that compensation should in no case be payable in respect of the value of any mineral oil or natural gas on or in any land taken under the provisions of the principal Act in respect of which the owners of the land had consented after the passing of the Act to the issue of the mineral-prospecting license.<sup>7</sup> There was also provision for regulations on efficient control of operations in connection with prospecting or mining for and the storage of mineral oils and natural gas, and for the prevention of unnecessary waste of those minerals.<sup>8</sup> Public bodies who had lands vested in their care as education reserves or endowments were allowed, under certain conditions, to grant leases or licenses for prospecting or mining for mineral oils or natural gas. The Amendment also made provision for the taking of land under the Public Works Act 1908 for oil wells, refineries, pipelines and



other works necessary for the conveying of oil, natural gas, or other produce of an oil-well or oil-refinery to any place of storage or shipment.<sup>9</sup>

That same year the government awarded the Taranaki Petroleum Co. a bonus of £2,500 for producing the first 250,000 gallons of crude oil in New Zealand. Thus ended the first era of the search for oil in New Zealand, a search characterized by small scale operations concentrating on surface indications, and until late in the period, apparently little legislative interest.

#### 1912-1937

The beginning of this period was marked by the official opening of a £40,000 oil refinery at Moturoa near New Plymouth. The advent of the First World War stimulated further activity and the Government of the day showed its concern for the Taranaki oil interests by loaning £9,000 out of the Consolidated Fund to Taranaki New Zealand Oil Wells Co. The loan concerned the new refinery, for the loan was advanced:

with the object of undertaking work that would increase the flow of oil and keep the refinery going.<sup>10</sup>

The Prime Minister, the Rt. Hon. Mr. Massey had earlier stated his view on the subject, saying:



The Government has considered the matter, and has considered it its duty to do something in assistance of a struggling industry.<sup>11</sup>

Later in the year an amendment to the Mining Act<sup>12</sup> inserted a pre-emptive condition in every license or warrant issued for petroleum and mineral oil mining. The condition allowed the Government of the Dominion of New Zealand, or His Majesty's Imperial Government, on reasonable notice unless in time of emergency or war to have prior rights over the whole or any portion of the output of petroleum works and mines. In time of war the licensee's mines, workings, refineries, plant, buildings, and appliances could be taken over and operated by the Governments. These pre-emptive provisions showed the Government's growing awareness of the importance, strategic and otherwise, of petroleum, but unfortunately the provisions were not utilized. Discovery still evaded the explorers.

After World War I, sporadic additions were made to the legislation concerning the petroleum industry. A 1919 Amendment<sup>13</sup> announced that prospecting or boring for petroleum or other mineral oils or natural gas, other than pursuant to a license issued under the regulations was unlawful. The regulations could specify the license form, term or terms, areas, fees, and conditions subject to which





such licenses might be reissued or revoked. The following year<sup>14</sup> the government amended s. 387 which concerned the general development of New Zealand's mining industry, i.e., as to incentives and rewards, and included the infant petroleum industry with the other minerals regulated by the Mining Act. In 1924 local authorities, public bodies, and trustees (including the Public Trustee or the Native Trustee) who held land in trust for special purposes were allowed, on written request to the Governor-General, to open their lands to petroleum exploration.<sup>15</sup> In 1926 a consolidation of the Mining Act<sup>16</sup> assembled the legislation of the last fifteen years to form "Part XII: Mineral Oils and Natural Gas". There were no new provisions but the legislative interest in progressive petroleum exploration was evident and the subsequent sitting of Parliament saw a tentative step towards New Zealand's first petroleum legislation to control oil and gas leasing.

On the 20th October, 1927, Mr. Hockley, M.P. for Rotorua, tabled a report of the Lands Committee on the Petroleum Bill. The Bill contained some important new principles and in short order it was suggested that the Bill go to the Native Affairs Committee, the Statutes Revision Committee, and the Mines Committee. The debate that followed gave an indication of the Bill's contents.





In particular, it was acknowledged that the Government was not prepared to enter the speculative field of petroleum exploration, since such gambles were only undertaken by private enterprise with private money.<sup>17</sup> The Minister of Mines, the Hon. Mr. Anderson, stated that he was satisfied:

... that the only sure means of thoroughly testing this country for oil is the employment of large capital. Small capital becomes exhausted before it has thoroughly tested the field. We want to attract the people who have command of large capital, and to give them an assured position; and at the same time we want to assure to the owner of the land all his rights in that land. In this Bill we have endeavoured to do these things.<sup>18</sup>

The main problems confronting the Legislature were native lands and the rights of private landowners. The Minister of Mines referred to:

a company which is now prospecting in the North ... (that) had a great deal of difficulty in obtaining the necessary rights to bore for oil in the areas desired. The company had to approach every individual owner, and then the title to the land was tagged. There was also difficulty experienced in connection with reserves and Maori lands.<sup>19</sup>

The interested overseas companies (Anglo-Persian Oil Company was mentioned) therefore wanted an assured legal position without having to acquire the rights to petroleum from all the individual surface owners. The Bill was based largely on the existing mining legislation, and while as far as possible individual rights were preserved it was stated "...those rights must be subject to the rights of the



State".<sup>20</sup> The better exploration techniques of major overseas companies were also recognized. The Bill gave the Government power to prevent despoliation of the oil-fields because:

already in New Zealand, by injudicious and ill-advised boring, water was let into one of the fields, and we do not want that sort of thing to occur again if we can avoid it.<sup>21</sup>

It should be recalled that at this time the search for petroleum was spreading. The United States, then as now, was one of the few oil producing jurisdictions that allowed private land owners to retain ownership of oil and gas in place. The overseas oil companies were already obtaining huge concessions for long terms outside North America and they wanted similar security of tenure before they began exploration in New Zealand. This factor, combined with the difficult topography and geology of New Zealand, enabled the foreign companies to present a strong argument which fell on receptive ears.

However, the Bill disappeared in Committee and petroleum exploration continued under the auspices of Part XII of the Mining Act 1926. Discoveries in the Americas and the Middle East distracted overseas capital from New Zealand in the 1920's, and the Great Depression dampened exploration in the thirties. Meanwhile, Taranaki Oilfields,



a company with strong financial backing began a serious exploration search in 1924. For six years a geological staff was maintained and they mapped several promising structures in Taranaki and Poverty Bay. Eight wells were drilled but although shows of oil and gas were encountered, no commercial discovery was made. A subsidiary of the Taranaki and Moturoa oilfield companies drilled four wells at Moturoa with some success in the early thirties and led to the formation of the New Zealand Oil Refineries Co. to purchase and refine the crude oil.<sup>22</sup>

The period thus saw the Legislature's growing awareness of the importance of petroleum and the need for special petroleum legislation. At the same time the exploration continued on a minor scale, in the main due to the lack of sufficient local capital to finance serious exploration for a sustained period.

#### 1937 - 1964

Although the 1927 Petroleum Bill did not obtain a third reading, it did indicate that the government was keeping a concerned eye on the search for petroleum in New Zealand. Eventually, in the course of the Address in Reply of the Legislative Council, December, 1937, the government announced it intended to bring down legislation vesting ownership of







the Dominion's petroleum resources in the name of the Crown.<sup>23</sup>

Legislation to this effect had already been passed in Great Britain (1934),<sup>24</sup> Victoria (1936),<sup>25</sup> and Western Australia (1936)<sup>26</sup> but not without heated debate. The New Zealand Bill was no exception, although the debate was along slightly different lines. In Great Britain the Conservative Government introduced the legislation and clearly broke across traditional party political philosophies concerning private ownership of land and its interests.<sup>27</sup> In New Zealand, however, the Labour Government was not confronted with problems of political philosophy but with traditional native rights which the member for Eastern Maori, the Hon. Sir Apirana Ngata, vigorously argued were protected by the Treaty of Waitangi, and vested by agreements already made with exploring oil companies. The argument narrowed to the issue of who should receive the royalty specified in the Bill. In order to get the Bill enacted in the 1937 Session, the Government agreed to discuss the royalties payment issue at a later date in the same Session, the Bill therefore receiving its third and final reading, December 9, 1937.<sup>28</sup>

The outstanding feature of the 1937 Petroleum Act was the vesting of all oil and gas-bearing sub-surface lands in



the Crown. This in substance transformed the Crown into the owner and therefore lessor of all petroleum rights in New Zealand. The effect of the Act was remarkable. The Mines Statement for the year ending December 31, 1937, stated:

Since the Petroleum Act came into force, I (the Minister of Mines) have received 78 applications for petroleum prospecting licenses covering several thousand square miles of country.

In spite of the fact that the world oil industry suffered a recession in 1938-39, the speech from the throne in 1939 commented that "it is pleasing to record that as a result of the special legislation passed in 1937 the search for petroleum oil in the Dominion is being vigorously prosecuted in several districts."<sup>29</sup> The advent of World War II also stimulated activity and the overseas companies of Standard-Vacuum, Shell, and Superior of California set up New Zealand subsidiaries to explore the nation's petroleum potential. Thus the Mines Statement of August, 1941 read:

The passing of the Petroleum Act in 1937 resulted in a search for petroleum on a scale and with a degree of efficiency never previously attained in this Dominion.

Under the Act sixty-six prospecting licenses concerning an area of 11,558 square miles were quickly taken up by strong financial companies, and at the present time fifty-eight licenses over 10,143 square miles are still subsisting. A staff of experts, at present numbering 178, were engaged on scientific work in an effort to locate sites considered suitable for drilling, and over £1,000,000 has already been expended in prospecting work. Expensive equipment was brought into the country, and two wells are at the moment being drilled, one at Morere,



now down to 5,722 feet, and the other at Midhurst down to over 7,900 feet. This latter well is the deepest which has ever been drilled in this country.

A careful study of the operations in progress should convince any one of the genuineness of the search for oil and incite admiration for the high standard of efficiency which has been attained. There have been many new problems for the experts to surmount, but when all the scientific preliminary work has been completed it is the drill, and the drill alone, which will prove or disprove the theories which have been formulated.

The whole economy of the Dominion would be affected by the discovery of petroleum oil in payable quantities, and it is to be hoped that the encouraging prospects so far reached will ultimately be crowned with success.<sup>30</sup>

The subsidiary companies carried out extensive geological and geophysical exploration and during the period 1940-1944 thirteen wells were drilled, ranging in depth from a shallow 1,173 feet to a deep 10,925 feet test.<sup>31</sup> None of these ventures proved successful, a result made doubly unfortunate in the light of the outbreak of hostilities in Asia, and subsequently the companies withdrew.

During the period there was an amendment to the Petroleum Act<sup>32</sup> which made for some easing in the prospecting license conditions. A prospecting license became renewable at the Minister's discretion to a maximum period of ten years. The Minister was also given power to suspend investigation or drilling on a prospecting license area for six months where drilling was being carried out on another of the licensee's prospecting license areas.





The provisions were apparently passed to lighten the obligations imposed on the foreign interests operating in New Zealand at the time.

While overseas interest turned to the Middle East bonanzas, the Moturoa field continued production, ownership passing to New Zealand Oil Refineries in 1947 and eventually to Egmont Oil Wells in 1950. Further minor wells were successfully completed in the area in 1948 and 1954.<sup>33</sup>

Overseas interest was further dissipated in 1951. With the approval of the government, Anglo-Iranian Oil Company geologists made a survey of all the geological information that had accrued from the operations of earlier oil exploration companies. Their discouraging conclusion was that New Zealand could not be considered a major potential source of oil.

That conclusion may have been the basis for Parliament amending the Petroleum Act in 1953.<sup>34</sup> Previously an applicant for a prospecting license was required to deposit security not exceeding £1,000. The amendment allowed the Minister to issue a prospecting license without an applicant depositing a security. The measure would appear to have been intended to allow local interests with small capital backing to re-enter the speculative field of





petroleum exploration.<sup>35</sup>

The exploration lull was ended by the discovery of oil in Western Australia in 1953. This stimulated Todd Brothers, a New Zealand company with interests in the motor trade firstly to take out prospecting licenses in Taranaki, Gisborne, Hawkes Bay, Greymouth and Canterbury, and secondly revive the interest of some of the "majors", namely Shell and British Petroleum. The overseas interests were not entirely happy with the provisions of the 1937 Petroleum Act, and following discussion with the Mines Department a substantial amending Bill was laid in Parliament. The amendments were intended to ease the Act's obligations and also clarify the rights of the license holders. This desire to please led to the introduction of a rather curious section which provided that conditions for a mining (exploitation) license were to be specified on the granting of a prospecting (exploration) license.<sup>36</sup> The renewal provision of the prospecting license was altered again to allow for renewal after five years provided there had been substantial compliance with the conditions of the license.<sup>37</sup> The widespread operation<sup>38</sup> that the new consortium proposed demanded an easing of the work obligations imposed by the Act and the Minister was given power to suspend the statutory obligations for such period as he thought fit if



an applicant with two or more prospecting licenses gave a written undertaking to investigate adequately the areas comprised in the licenses.<sup>39</sup>

The obligation to refine indigenous petroleum was removed from the realm of Ministerial order to consultation and arbitration.<sup>40</sup>

The Minister's discretion to revoke a license was made subject to magisterial recommendation.<sup>41</sup>

The final amendment provision was the insertion of an arbitration clause which allowed certain issues of conflict between the Minister and a licensee to be submitted to arbitration.<sup>42</sup>

A fairly lengthy debate ensued in the House, but it seemed to serve mainly to allow various members to air their knowledge of the oil industry.<sup>43</sup> Although the need to encourage foreign oil companies was clearly recognized to be of paramount importance, the easing of the work obligations caused some parliamentary concern.<sup>44</sup>

The legal obstacles thus removed, the Shell-British Petroleum-Todd consortium began an intensive seismic and geological evaluation of the Taranaki area, and the West Coast of the South Island, utilizing the latest advancements in petroleum exploration technology. The first test well, designated Kapuni I, was spudded in January 27, 1959 near Hawera. At 10,675 feet wet gas was encountered, which disclosed some condensate on testing. Further evaluation wells



delineated New Zealand's first commercial hydrocarbon reservoir, a field measuring about seven miles long and three and one half miles wide, capable of producing 40 million cf/d of gas and 43<sup>0</sup> - gravity condensate at 3,500 b/d.<sup>45</sup> The development of the Kapuni strike was complicated by differing professional opinions as to its potential and end use.<sup>46</sup> Not until February 1970 did the treated gas begin to flow to eleven principal population centres in the North Island.

The Shell consortium drilled further wells in Taranaki including the deepest hole (at that time) in the Southern Hemisphere, 16,600 feet at Inglewood in June, 1963, but no further success followed. The consortium's East Coast operations were put in the hands of British Petroleum, and New Zealand Aquitaine Petroleum Co. entered the joint venture in 1964. The difficult geology and terrain of the North Island's East Coast yielded some shows of hydrocarbons, but no commercial strikes.

The period thus saw the introduction of New Zealand's first petroleum legislation, designed in the main to attract foreign oil interests to New Zealand shores. The legislation was influenced by the English and Australian precedents of the time, and did not vary too far from hard mining principles. The exploration activity fluctuated







enormously, reaching highs in the early forties and late fifties, finally culminating in the Shell group success at Kapuni.

#### 1964 - 1970

As the hopes for a further onshore petroleum discovery were slowly exhausted, interest turned to the offshore areas. The Shell consortium began offshore seismic investigation in 1964. The New Zealand Parliament asserted its sovereign rights over the adjoining seabeds natural resources in the Continental Shelf Act, November 3, 1964. Amendments to the Petroleum Act followed<sup>47</sup> and in October, 1965, five operating companies were issued petroleum prospecting licenses covering a total area of 48,990 square miles. Then followed a considerable amount of offshore geophysical activity by all firms.

The first offshore well was drilled by Esso Exploration and Production (N.Z.) Inc. who had entered into a working interest agreement with J. H. Whitney and Co. to evaluate a license area northwest of New Plymouth. A drilling vessel, Discoverer II, spudded in Moa IB in about 500 feet of water but eventually abandoned the well in January 1969 and the Shell company moved the vessel south to their first offshore wildcat, located about forty miles west of Kapuni



and some twenty miles offshore in 375 feet of water. Hopes were high, and in March 1969, to the considerable delight of the New Zealand public, the consortium announced a hydrocarbon discovery of dimensions sufficient to pursue a thorough appraisal program. Two further wells were drilled closer inshore, both confirming Maui #1, and apparently defining a large oil and gas condensate field. Further appraisal is continuing and technological problems still have to be solved, but already the discovery has had the desirable effect of attracting further attention to New Zealand's petroleum potential.<sup>48</sup>

The above outline has sketched the main features of New Zealand's petroleum exploration and legislative history.<sup>49</sup> The recent exploration activity has substantiated the faith of a few men who had the knowledge, belief, and foresight to see that New Zealand's petroleum potential could not be properly developed without the risk capital<sup>50</sup> and technical skills of the overseas oil companies. The increased interest and improved techniques of foreign oil exploration entities is heralding a new era in the petroleum history of New Zealand.

The historical survey raises several questions in the wider context of international petroleum legislation. In substance the New Zealand petroleum legislation is now over



thirty years old, a venerable age in a dynamic industry. The question that must arise is just how appropriate is the 1937 Petroleum Act and its amendments to the present era of petroleum exploration in New Zealand? How relevant is the thirty three year old legislation to the current state of technology and exploration experience expertise in the petroleum industry?

As the Crown owns the petroleum, it may be asked if the legislation is adequately protecting the public interest in hydrocarbon resources? What interests of the public in natural resources need protection? Is the petroleum leasing legislation protecting the public's interest while at the same time attracting the attention of the oil and gas industry thereby ensuring that the hydrocarbon resources of the nation are fully explored? Are the leasing policies such as to attract foreign petroleum interests or is the legislation too stringent and therefore acting as a disincentive?

If new legislation is necessary, should it define the industry's obligations in greater detail? Or should the legislation be of a general nature, allowing the government to set the terms of each exploration and production contract made with the oil firms so as to specify conditions appropriate to any changed circumstances, as, for





example, may be seen in the United Kingdom's legislation?

Should issues like conservation and pollution be brought into a general Petroleum Act, or should the Act concern itself solely with the granting of exploration and exploitation rights? Should the Crown participate in the development of its potential petroleum resources? Is there a need for separate legislation governing the development of offshore sedimentary basins petroleum potential? These and other questions need further discussion.



## FOOTNOTES

## CHAPTER II

- 1 L.S. Jones, History of Mineral Prospecting and Production, Eighth Commonwealth Mining and Metallurgical Congress (1965), Vol. IV, p. 15.
- 2 Id., D.S. Watt, Natural Gas and Oil in Western New Zealand, Vol. VII, 220:9.
- 3 Supra, n.1.
- 4 Supra, n.1, L.S. Jones, The Mines Department, New Zealand - Its Functions", Vol. VII, p. 205:1.
- 5 Statutes of New Zealand, 1891, No. 33.
- 6 Id., 1911, No. 32.
- 7 Ibid., s. 2(2).
- 8 An interesting clause in view of the fantastic wasted oil and gas production in the United States at that time. See John Ise, The United States Oil Policy, (1926).
- 9 Supra, n.4.
- 10 New Zealand, Parliamentary Debates, 1914, House of Representatives, p. 903.
- 11 Id., p. 869.
- 12 New Zealand Statutes, 1914, No. 62, s. 31.
- 13 Id., 1919, No. 35, s. 15.
- 14 Id., 1920, No. 53, s. 15.
- 15 Id., 1924, No. 44, s. 2. This provision was passed in order to expedite some exploration activities in Taranaki.
- 16 Id., 1920, No. 15.



- 17 New Zealand, Parliamentary Debates, House of Representatives, 1927, p. 125, Mr. Wilford (Hutt).
- 18 Id., p. 126.
- 19 Id., p. 127.
- 20 Id., p. 126, Mr. Anderson.
- 21 Id., p. 126.
- 22 The only commercial oilfield operating in New Zealand is the small one at Moturoa (New Plymouth) which was first discovered in 1866 and first exploited in the early 1930's. The field has yielded a very limited but steady flow of oil. To the end of 1968 total production of crude oil from the field has amounted to 7,334,200 gallons. The field supplies a negligible proportion of New Zealand's present annual requirements. The oil is refined and sold locally at New Plymouth: New Zealand Government paper, Recent Developments in the Petroleum Industry in New Zealand, presented to the Fourth ECAFE Symposium, Canberra, November 1969, p. 13.
- 23 New Zealand, Parliamentary Debates, 1937, Legislative Council, p. 443.
- 24 Petroleum (Production) Act (U.K.), 1934.
- 25 Petroleum Act (Vict.), 1936.
- 26 Petroleum Act (W.A.), 1936.
- 27 Great Britain, 5 Parliamentary Debates, (Commons), Vol. 291, pp. 1569-1716 and pp. 2221-2246.
- 28 New Zealand, Parliamentary Debates, 1937, House of Representatives, pp. 1040-1075. The royalties debate was deferred until March, 1938 when the question was discussed as an amendment to the Mines Statement. Sir Apirana Ngata's arguments were based largely on Article Two of the Treaty of Waitangi which guaranteed the "... full, exclusive, and undisturbed possession of their (the Chiefs and tribes of New Zealand) lands and estates, forests, fisheries, and 'other properties'...". The Treaty granted the exclusive right of pre-emption over such lands to Her Majesty, and the Honourable Member





for Eastern Maori argued that nothing was being paid by way of compensation to the Maori for the resumption by the State of their oil rights (Parliamentary Debates, 1938 (House) p. 67). When the bill was before the Native Affairs Committee, the Ngati-Porou (the tribe that inhabits the North Island's East Cape) stated that their preference was that the individual Maori landowners, as adjudged by the Native Lands Court, collect royalties from oil produced from their land, rather than the royalty going into a general fund for all the Maoris of New Zealand or to the tribe owning the oil-producing land (Id., p. 100). However, the Government of the day defeated the motion. Maori rights were not entirely disregarded for Mr. Titikatene (Southern Maori District) stated that he was satisfied with the assurance of the Minister of Mines that, should Maori people have oil extracted from their properties, the Government would be prepared to meet those Maori people with a view to discussing some measure of payment to them, according to the quantity of petroleum extracted (Id., p. 78).

- 29 Id., 1939, p. 7 in the Governor-General's speech.
- 30 Id., August 21, 1941, p. 212, Mines Statement, Mr. Webb.
- 31 The Search for Oil in New Zealand, Public Relations Dept., Shell, B.P. and Todd Oil Services Ltd., Wellington, 1968, p. 4.
- 32 Statutes Amendment Act, 1941, No. 26, ss. 59-63.
- 33 Supra, n.2 Appendix D.: Dobson - 1, 2 b/d on pump, and Egmont - 5, 3 b/d on pump.
- 34 Statutes of New Zealand, 1953, No. 21, s. 2.
- 35 New Zealand, Parliamentary Debates, 1953, pp. 658-59.
- 36 Statutes of New Zealand, 1955, No. 43, s. 2.
- 37 Id., s.3, inserting s.5A into the Petroleum Act.
- 38 "One of the licenses granted covers 7,000 square miles and another 1,600 square miles." New Zealand, Parliamentary Debates, 1955, p. 2067. Mr. Sullivan.
- 39 Supra, n. 36, s.4, inserting s.8A.



- 40 Id., s.7, inserting a new s. 13.
- 41 Id., s.18, amending s.17.
- 42 Id., s. 10 inserting s.38A.
- 43 New Zealand, Parliamentary Debates, 1955, pp. 2066-2072 and pp. 2154-2171.
- 44 Id., Mr. Skinner, p. 2155; Mr. Moohan, p. 2168.
- 45 E.A. Rudd and H.R. Katz. Petroleum Developments in Southwest Pacific Region during 1967, 52 A.A.P.G. Bulletin, 1603.
- 46 The variations are discussed by P.A. Toynbee in The Contribution of Kapuni Natural Gas to the New Zealand Economy, Eighth Mining and Metallurgical Congress, Vol. VII, paper 217.
- 47 Statutes of New Zealand, Petroleum Amendment Act 1965, No. 14. The Amendment allowed license areas to exceed 200 square miles and allowed a security of up to £10,000 to be specified.
- 48 E.g., see Frank Gardners' column in the Oil and Gas Journal, March 2, 1970, p. 33.
- 49 For detailed current surveys see H.R. Katz' comments on New Zealand petroleum developments in the August issues of the A.A.P.G. Bulletin, 1968, 1969, 1970.
- 50 The Shell group spent some \$20 million on oil exploration in New Zealand in the decade prior to 1968. Off-shore operations multiply costs. For instance, conventional operating costs are \$3,000 daily and rise to \$10,000 daily for offshore operations. Environmental conditions can further raise costs., e.g., daily operating costs are \$18,000: Richard Venn, Vice-President of Humble Oil and Refining Co., at the Canadian Petroleum Association's Annual Dinner, Calgary, April 8, 1970. Shell budget the Maui appraisal well series at \$10-12 million.



## CHAPTER III

## CRITIQUE

The Need for Revision

When comment is delivered on legislation that is now thirty-three years old (and has apparently been successful in fulfilling the hopes of the original legislators) the commentator must answer the question: What is the purpose of your comment?

An ideal answer may lie in the writer's hope of provoking thought and inciting legislative or other action or inaction.<sup>1</sup> At the same time, the strictures that the Rt. Hon. Sir Alexander K. Turner delivered at the opening of the new Law School at the University of Auckland<sup>2</sup> concerning young "academics" venturing into the fields of scholastic endeavour without experience in the world of practice is not to be disregarded.

Be that as it may, the age of the principal statute controlling petroleum leasing in New Zealand, in an era of law reform in New Zealand, invites comment.<sup>3</sup> Essentially petroleum legislation has a high socio-political-economic content and must be appropriate to changing conditions and circumstances. There has been constant revision and amendment of foreign petroleum legislation since World War II.<sup>4</sup>





The current wave of interest in New Zealand's petroleum potential is another factor for such consideration. The very importance of petroleum as a natural resource necessitates constant review of the legislation. The considerable public interest in natural resources requires both public and private scrutiny of petroleum legislation. The dynamism of the petroleum industry itself requires that legislators ensure their legislation is cognisant of industrial, technological and scientific progress.

The New Zealand Government has not been unaware of overseas developments concerning petroleum. At the second ECAFE Symposium on the Development of Petroleum Resources of Asia and the Far East (Teheran, Iran, September, 1962) it was stated in the New Zealand Government's paper on "Economics of Petroleum Exploration, Production and Distribution in New Zealand" that:

The Petroleum Act of 1937 governs all legislation relating to matters connected with petroleum development in this country. This act may be subject to amendment following the discovery of oil in commercial quantities.

While the precision of the first sentence may be queried<sup>6</sup> the passage indicated government awareness of some limitations in the current petroleum legislation. Recent additions to the principal Act have dealt with pipelines<sup>7</sup> and offshore petroleum jurisdiction<sup>8</sup> and development.



The 1937 Act's purpose was shortly stated: "An Act to make better provision for the encouragement and regulation of mining for petroleum and to provide for matters incidental thereto." The historical survey of the search for petroleum in New Zealand<sup>9</sup> indicates that the legislation has been successful in attaining its initial purpose. It may be observed, however, that the lack of alteration of the legislation has been concomitant with the lack of success previously attending the exploration efforts. But the Kapuni and Maui strikes have altered the situation and it must be asked if the present legislation is still appropriate, especially when seen in the light of overseas petroleum legislation.

What characteristics attend foreign petroleum legislation? Since the time that petroleum's special qualities as a nonrenewable natural energy resource were recognized, separate legislation has arisen to cope with the unique characteristics of petroleum, the difficulties incumbent in discovering hydrocarbon reservoirs, and the need to prevent unnecessary waste. The physical characteristics of petroleum have entailed high capital investment to find petroleum reservoirs. Petroleum interests have therefore demanded greater inducements and investment protection in petroleum legislation than is usual in mining legislation.



More recently man's concern for his habitat has affected his previous concern to obtain oil and gas, consequently affecting legislation governing natural resources.

Two authors have discussed foreign petroleum legislation and subsequently classified the legislation studied. In the first foreign mineral jurisdictions were arranged<sup>11</sup> in four primary groups: those based on (1) the English common law; (2) the Civil Law; (3) the Ancient Islamic Law, which has a varying effect in the Middle East; and (4) statute and concession terms which are largely negotiated mixtures of concepts derived from the world's legal and ethical systems.

In the other study of legal and fiscal regulation of basic systems governing oil and gas development and production the systems were grouped into four,<sup>12</sup> although the groups did not wholly overlap with the previous categorization. The North American system is characterized by the grant of relatively small parcels of land for exploration and development by any one company or individual. In the United States this phenomena is explained by the extensive private ownership of oil and gas rights. Although in Canada such rights are primarily vested with the Crown in right of the individual provinces and with the Crown in right of Canada in the territories, there is a multiplicity of





mineral rights ownership because the provinces have tried to ensure a fair share of production to all oil producers.<sup>13</sup> Thus the Canadian pattern of development shows some similarity to the United States, particularly in distinctive methods of financial encouragement, e.g., the depletion allowance and the expensing privilege for taxation purposes. The production phase duration is defined by the time of commercial production rather than a certain period of years. Conservation and prorationing are practiced and are supervised by Conservation Boards<sup>14</sup> rather than Mines and Mineral Departments. The regulations governing methods used in drilling and production and for prevention of waste are more highly developed than in any other area.<sup>15</sup>

In contrast, reference can be made to countries where regulation of oil exploration and development is subject to complete or partial nationalization, e.g., Mexico, Brazil, Chile, and the communist countries. Inadequate capital structures and unstable political conditions have prevented a number of these countries from realizing their petroleum potential.<sup>16</sup>

The Middle East area is well known for the concession contract systems that characterize petroleum exploration and development. The early concessions were made between the head of state and an oil company. The agreements were for



long periods over huge areas and had moderate fiscal obligations.<sup>17</sup> In the last twenty years the great oil exporting nations of the Middle East have realized their bargaining strength and the concession agreements have altered accordingly. For instance, the financial agreements have been transformed from royalty-plus-fixed-payments and sign-on-bonus, to 50-50 profit-sharing as originated in Venezuela in 1948,<sup>18</sup> to 75-25 agreements whereby government oil companies are joining the concessionaire in joint ventures once commercial discovery is made.<sup>19</sup>

The fourth group is now widely found:<sup>20</sup> regulation of oil exploration and production by means of a single petroleum law (sometimes contained as part of the general mining law) which reserves subsoil rights to the nation but grants rights for petroleum exploration and development to private enterprises composed either of foreign or local capital. Most of the laws divide operations into two phases, i.e., exploration and exploitation. The initial concession is from three to five years with provision for renewal usually subject to compliance with specified work obligations or minimum expenditures. Areas granted are generally smaller than those under concession contracts but inaccessible or inhospitable areas may be granted either in larger blocks or at cheaper rents. An essential feature



in view of the large initial investment is the explorer's exclusive right to exploit a discovery. Exploitation periods run from thirty to fifty years and fiscal terms vary considerably. The exploitation concession area is usually about half the exploration area, allowing the government to regrant the unclaimed areas to the highest bidder(s). There can, of course, be variations of this outline of basic obligations.

The four different groups of petroleum laws disclose a number of common basic features.<sup>21</sup> The 1958 ECAFE Symposium on Petroleum Development summarized these features in a report of the Working Group on Regulations Governing Petroleum Resources Development under nine headings:<sup>22</sup>

(1) petroleum areas; (2) conditions for granting petroleum rights to foreign companies; (3) preliminary exploration (reconnaissance) rights; (4) exploration rights and obligations; (5) grant of exploration rights; (6) terms of exploitation concessions; (7) government revenues; (8) protection of rights during the period of concession or license; and (9) government exploitation.

Because of the importance of the discovery of indigenous petroleum, care must be taken not to lose sight of the realities that surround petroleum legislation, and the legislation's effect on petroleum exploration and exploitation.





Four primary realities are capital, risk, time, and skill. A nation with financial resources and skill sufficient to carry out petroleum exploration without distorting its economic and political system may not need to lay down any detailed rules governing exploration and exploitation activities. But New Zealand has never been in such a position. The 1937 Act introduced legislation to induce foreign capital to accept the risk of possible financial loss involved in petroleum exploration in New Zealand. Ideally the larger the number of qualified entities that can be attracted to such search, the more effective and rapid will be the development of petroleum resources. The legislation therefore must be detailed and clearly lay down the terms for participation by all eligible entities in such exploration and exploitation. The same rules for all should promote competition and avoid discrimination.

Government, in order to attract the maximum capital investment to the search, must assess what reasonable inducement is needed. At the same time the position of the nation must be properly safeguarded. The position of the nation has been otherwise described as "the public interest" by Dr. A. R. Thompson, a Canadian authority, who has posed three questions to test the extent to which the public



interest is fostered by legislation regulating the petroleum industry:<sup>23</sup>

- (1) Does the legislation serve a proper balance between the interests of the present generation in maximum exploitation at the present time and the interests of future generations in the conservation and preservation of petroleum resources for the future?
- (2) Does the legislation achieve the maximum revenue returns to the state consistent with a desirable pace of exploration and development?
- (3) Has the legislation served to balance on the one hand the need for foreign investment to develop a flourishing petroleum industry and on the other hand the need to maintain and foster the positive values of national sovereignty?

To these questions he would now add a fourth:

- (4) Does the legislation maintain an adequate regard for total ecological and environmental considerations in authorizing and regulating petroleum exploration and development?

The first question as yet is a small problem in view of New Zealand's present minuscule petroleum production but will perhaps be a question for the future; the second and third questions are relevant to a study of the current New Zealand legislation, while the fourth is a combination of both present and future.

It is proposed to consider the New Zealand Petroleum Act in the light of these questions and in comparison with current Commonwealth and certain American federal petroleum



legislation. The Canadian legislation is primarily taken from Alberta, the principal oil producing province of Canada.<sup>24</sup> The Federal legislation regulating petroleum activities in the North West Territories provide some guidance, for exploration there is still in its early stages and certain similes can be drawn with the New Zealand setting. Great Britain still retains the short Petroleum Act of 1934 but the important rules are found in the regulations promulgated in 1966 and entitled the Petroleum (Production) Regulations. Model license clauses in the Regulations provide terms usually found elsewhere in an enabling Act or its Regulations. Nigeria is increasing its petroleum production rapidly and at present petroleum activity is regulated by the Petroleum Decree, No. 51, November 27, 1969 and the Petroleum (Drilling and Production) Regulations 1969. The legislation is modern and wider in scope than the other foreign legislation considered, for anti-pollution and some marketing provisions are to be found along with pre-emptive powers that all too clearly recall the recent civil war. Of the Australian states, Queensland, Victoria, and Western Australia's petroleum laws have been studied. The recent federal Australian Offshore Code has been considered together with Western Australia's onshore legislation because of the substantial





adoption by Western Australia of the federal code. The Nigerian, British and Australian laws have been considered in the context of offshore petroleum activity. Also, it was felt advisable to compare the United States Outer Continental Shelf legislation in view of the fact that this statute regulates the world's most intensive offshore activity. New Zealand's petroleum future may well lie in the development of offshore reservoirs.

Following discussion of the matters raised by the Petroleum Act and license conditions, some general policy matters that arise in leasing legislation are discussed, and to this end reference has been made to some general petroleum texts.

### Terminology

A survey of the Petroleum Act's progenitors in the Mining Acts from 1892 reveals that for 45 years the petroleum legislation was thought to be no different from the legislation regulating other minerals. Some cognisance was taken of petroleum's peculiar characteristics in the 1937 legislation, e.g., as to areas granted, license terms, and unitization, but inevitably the legislation was affected by the pick and shovel concepts of the nineteenth century.<sup>25</sup> Improved knowledge and advanced technology necessitate that



legislation regulating the oil and gas industry must keep abreast of such advances and if possible allow for future trends and improvements in the industry. Today's oil industry can reconnoiter vast areas, explore deep under sea, and drill to about 30,000 feet below the land surface, a far cry from the gold prospecting and mining of the 1860's.

Today's oil industry speaks in terms of exploration, production, refining, and marketing. Thus it is submitted that some of the terminology found in the 1937 Act is inappropriate to present day industrial terminology. Phrases like "prospect ... on any land"<sup>26</sup> and "prospecting and mining for petroleum..."<sup>27</sup> are relics of bygone times, and today their popular meanings are defined in relation to natural resources other than hydrocarbons. It is desirable, therefore, that the legislation regulating the oil and gas industry recognize the jargon of the industry.

More specific comment is directed at the interpretation section which, in common with other New Zealand statutes, is found at the beginning of the Act. Much of the draftsman's art is seen in defining terms essential to the intent of the Act, and it may be said the interpretation section itself demands an overall view of the statute, and the definitions therefore are a product as much as a prerequisite



of the statute.

"Mining Operations" is given a wide definition:<sup>28</sup>

means mining for petroleum, and includes prospecting for petroleum; and also includes -

(a) The extraction, production, rectification, refining, improvement, conveyance, and storage of petroleum produced in New Zealand and of any products of any such petroleum; and

(b) The construction, maintenance, and operation of any works, wells, buildings, storage tanks, pipelines, machinery, plant, wireless apparatus, telephonic equipment, railways, trainways, reservoirs, waterways, structures, appliances, or chattels used or intended to be used in connection with any of the operations hereinbefore mentioned:.

The use of this omnibus term enabled the draftsman to use the phrase in many parts of the Act. It is submitted, however, that such techniques can lead to administrative difficulties in defining the separate stages of petroleum exploration and exploitation that the Act apparently tried to establish, i.e., prospecting and mining. It is preferable to delineate more specifically the various activities rather than use an omnibus term that can be laid open to a charge of ambiguity.

A different criticism may be levelled at the Act's definition of "petroleum"<sup>29</sup> which:

includes any mineral oil or relative hydrocarbon and natural gas existing in its natural condition in strata, but does not include coal, helium or bituminous shales, or other stratified deposits from which oil can be extracted by destructive distillation:





The definition seems too narrow. Petroleum may be and often is produced in conjunction with certain other valuable natural resources, e.g., sulphur, and helium.<sup>30</sup>

The question really is, should the products often produced in association with hydrocarbons be controlled by the same legislation? The United States Outer Continental Shelf Act emphatically says yes, and under the Act issues separate leases for sulphur production,<sup>31</sup> and reserves and retains ownership of and the right to extract all helium produced in gas on the outer Continental Shelf area.<sup>32</sup>

The Australian legislation until recently usually confined the definition of petroleum to petroleum and mineral oil existing in a free state, natural gas, and solid bitumen, and excluded helium and mineral oils produced by industrial process.<sup>33</sup> The new Australian Offshore Code widens this traditional view and defines petroleum as:<sup>34</sup>

- (a) Any naturally occurring hydrocarbon, whether in a gaseous, liquid, or solid state;
- (b) Any naturally occurring mixture of hydrocarbons, whether in a gaseous, liquid or solid state; or
- (c) Any naturally occurring mixture of one or more hydrocarbons, whether in a gaseous, liquid or solid state, and one or more of the following, that is to say, hydrogen sulphide, nitrogen, helium, and carbon dioxide,

and includes any petroleum as defined by paragraphs (a), (b), or (c) of this definition that has been returned to a natural



reservoir in the adjacent area. The last clause provides for the situation whereby petroleum may be returned to a reservoir either for reservoir energy conservation purposes or for storage.

The Canadian legislation has little to say specifically about natural resources found with petroleum other than in Saskatchewan which passed specific regulations under the Mineral Resources Act,<sup>35</sup> on Oil Shales,<sup>36</sup> and Helium and Associated Gases.<sup>37</sup> Similarly Alberta has passed Bituminous Sands and Oil Sands Regulations<sup>38</sup> under the Mines and Minerals Act<sup>39</sup> to control exploitation of tar sands. While at present New Zealand's bituminous shales do not appear to be an economic proposition,<sup>40</sup> scientific progress and the inevitable world oil shortage may alter the position, and in such case governmental guidelines may be desirable. However, mineral oil produced by destructive distillation, because of its unique production problems, would seem to require separate legislation.

In sum, the foreign legislation is showing a tendency to include natural resources that are produced in conjunction with petroleum by usual methods within a definition of petroleum, thereby allowing the lessor to retain ownership and control over the valuable substances often found in petroleum reservoirs. It seems a sensible step to follow.



## The Basic Petroleum Tenements

The public and private laws controlling the search for and production of petroleum display a general pattern similar to the working stages found in the industry, i.e., reconnaissance, detailed exploration, and if hydrocarbons are found, development drilling, production, transport and refining. The controlling government bodies or authorities usually require the operator to obtain fresh concessions (permits, licenses, réservations, or leases) at each new stage of activity.

It may be said generally that operations (for leasing purposes) divide into three or two stages. The distinction is found in the initial steps. The controlling authority may allow an operator to carry out widespread reconnaissance of a superficial nature over a large permit area, or over any area in the jurisdiction, subject to some reservations. Then the operator may be required to undertake more thorough exploration of a smaller area over which the operator has exclusive rights. The distinction between the reconnaissance and exploration stages may be drilling rights given with the exploration license. Discovery of hydrocarbons begins the third stage, the lease of which is usually limited to a small producing area.

Alternatively the controlling authority may issue





an exploration license as the initial concession, such license enabling both reconnaissance and exploration activities to be carried out. The discovery of petroleum will begin the second and final stage of exploitation and enable the operator to obtain a production lease.

For example, the Canadian legislation illustrates a two stage system of a permit (or reservation) followed by a lease.<sup>41</sup> The initial reconnaissance operations are controlled by separate regulations concerning geological and geophysical activity.<sup>42</sup> In Australia, however, a three stage system can be discerned. The large surface areas enable the state governments to grant exploration (reconnaissance) licenses over areas up to 10,000 square miles after which the operator may choose a smaller prospecting license which may be then followed by a production lease.<sup>43</sup> In total effect, the difference is one of form rather than content. The distinctions reflect the different stages of maturity in the petroleum industries of the two countries.

The New Zealand Petroleum Act on its face portrays a two stage system of prospecting (exploration) and mining (exploitation). An operator's reconnaissance operations are confined to the license areas he can acquire.<sup>44</sup> This is a matter for concern for a prospecting license onshore



covers up to 200 square miles; no limit has been placed on the area of offshore licenses.<sup>45</sup> New Zealand does not have great areas to reconnoiter for petroleum,<sup>46</sup> but this is not a reason for limiting initial reconnaissance operations to prospecting license areas. All too often seismic interpretation has differed on the possible hydrocarbon potential of the sub-surface.

Many very profitable discoveries in North America have arisen merely from one set of thinking translating differently the various probabilities involved. In other words, the same data on a given area can be subject to a multiplicity of competing interpretations. These different evaluations of probabilities lead to different ideas on both priorities and policies with the result that many important oil fields have been found in areas which other operators have given up as insufficiently prospective. Thus, recognition of the existence and fallibility of different interpretations is important in policy. Preferably, more than one operator should act in any area...<sup>46(a)</sup>

By limiting the operator to the license areas he can acquire, the legislation thus prevents further knowledge of substrata being gained. When licenses expire and are surrendered, other operators are without the knowledge by which they could make an intelligent bid for the acreage returned to the Crown.

It is suggested that separate geophysical and geological regulations could be introduced to allow operators more scope in their initial reconnaissance activities.



Reconnaissance regulations could also more precisely control such matters as the operator's rights of entry on to land, explosive equipment, safety requirements, reports to the Mines Department and matters of compensation for landowners and others affected by petroleum activity.<sup>47</sup>

To distinguish the above non-exclusive operators, regulations controlling drilling could be utilized to make the operator obtain an exploration license, e.g. if the operator wanted to drill below a certain footage the operator would have to obtain an exploration license which would confine his activities to a defined area and also give him certain exclusive rights over the area.

The present terms of a prospecting license in the New Zealand Act seems to encourage monopolization of large license areas, a result in part of the exclusive rights given over prospecting areas. The freeing of initial reconnaissance operations from the prospecting license would, it is submitted, ease some of the difficulties facing petroleum exploration firms now considering entering the New Zealand oil and gas scene.

#### The Prospecting License: Exploration Privileges and Obligations

In order to consider the prospecting license issued under the Petroleum Act, it is useful to firstly consider





the conditions for petroleum exploration activity commonly prescribed in foreign legislation. The exploration license or permit is usually issued at the discretion of the controlling authority; the rights and obligations of the concession holder are determined by the petroleum law(s) and regulations. The explorer usually has to file an application giving details of citizenship if a person, registration and domestic content if a company, financial and technical qualifications, proposed exploration areas and work plans, together with prescribed fees and securities. If the applicant is successful various obligations will be imposed along with the grant of such privileges as right of entry, the right to search for hydrocarbons and perhaps the right to drill a well. Such privileges may be exclusive or non-exclusive. The applicant may be subject to various work obligations (e.g. to begin surveys within a certain time, to drill a certain well footage within a certain time, to expend at least \$x per acre per annum or part thereof), disclosure provisions that require detailed reports to designated bodies, and area, duration, rental, and renewal conditions. A concession holder may be able to group some of his work obligations from different concession areas. A usual requirement is that a discovery of hydrocarbons be immediately brought to the notice of the



controlling authority, which will in turn ask the license or concession holder to go to lease.

Exploration activity in New Zealand is carried out under ss.5-8A of the Petroleum Act 1937 and its amendments. The Minister at his discretion may grant a prospecting license<sup>48</sup> on application in the prescribed form.<sup>49</sup> An applicant for an area onshore may be granted an area not exceeding two hundred square miles or such part as the Minister thinks fit.<sup>50</sup> Within the continental shelf a prospecting license may be granted for a continuous area exceeding two hundred square miles.<sup>51</sup> There are no restrictions on the shape of exploration concessions, nor is there a limit on the number that may be granted to and held by a single explorer.

The licensee obtains an exclusive right to prospect for petroleum over the licensed area.<sup>52</sup> The right must be exercised with due care towards other users of the land. The license is granted for a period of five years, and if the Minister is satisfied that the holder of a prospecting license has substantially complied with the conditions of the license, the licensee may renew the license for an additional five years.<sup>53</sup> The ten year period seems a generous provision when compared to other petroleum legislation.<sup>54</sup>



The licensee is required to commence geological, geophysical or other investigation for "mining purposes" within three months of the grant of the prospecting license.<sup>55</sup> Investigations have to be prosecuted with "reasonable diligence" throughout the currency of the license, although such obligation is deemed suspended whenever the licensee is drilling at least one well on the land with reasonable diligence.<sup>56</sup> An adequate drilling outfit is to be installed and drilling commenced within three years after the grant of a prospecting license. The well is to be drilled until proved productive or otherwise, to the satisfaction of the Minister. Thereafter the licensee is to continue drilling with reasonable diligence on the said land at least one well at a time until proved productive or not.<sup>57</sup>

The prospecting licensee's work obligations can be eased at the Minister of Mine's discretion. If a licensee has obtained more than one license and is diligently proceeding with investigation on one license and is drilling on another license within one hundred miles of the first license area, the Minister may extend the three year period given to the licensee to begin drilling on a prospecting license.<sup>58</sup> If investigation on one license has reached a point at which the licensee is ready to commence drilling and is already diligently drilling on another





prospecting license, the Minister can suspend the licensee's investigation obligations for periods not exceeding six months at any one time.<sup>59</sup> If a licensee is drilling on two licenses the Minister may suspend the obligation to continue drilling on one of the license areas.<sup>60</sup> An operator who is applying for or has obtained two or more prospecting licenses may submit an exploration plan to the Minister and the Minister may, if he thinks fit, modify or suspend investigation and drilling obligations over such license areas.<sup>61</sup>

On looking at foreign petroleum work obligations two approaches are discernible, though they are sometimes intertwined. On the one hand specific requirements to reconnoiter and drill are to be found.<sup>62</sup> On the other hand Canadian jurisdictions are utilizing monetary incentives to prompt exploration. Such schemes work on the principle of deposits<sup>63</sup> or rentals<sup>64</sup> which escalate year by year against which exploration and drilling expenditures may be credited.<sup>65</sup> Where there is a more mature oil industry, as in Alberta, it may be only necessary to have an escalating rental to urge operators into exploring permit acreage,<sup>66</sup> although approved work programs are still necessary and drilling expenditures can be credited to lease rentals.<sup>67</sup>



The New Zealand legislation has shown indications of moving from stipulated work obligations as outlined above to a mixture of specific work requirements and monetary schemes. The Petroleum Amendment Acts of 1955 and 1965 made provision, in the first case for the applicant to estimate costs of investigation,<sup>68</sup> and in the second case (concerning continental shelf exploration) for the licensee to expend a specified sum within a specified period on prospecting operations.<sup>69</sup>

The new West Australian legislation goes a step further in that work obligations are simply defined by specified expenditure.<sup>70</sup> It is submitted that this illustrates a better form of regulation. There are two advantages to such a scheme. Firstly, once the expenditure is set, the exploration company is given freedom of action and if it fails to make the necessary expenditure the money can be collected by the state. Secondly the scheme is simple to administer. It has been the Alberta experience that stipulated work obligations provided insuperable supervisory and administrative difficulties,<sup>71</sup> although this of course was a problem found in a thriving oil exploration area. Even the auditing of work expenditure credits against work obligations can prove difficult.<sup>72</sup>

There is an additional advantage to stipulating a dollar value of work expenditure. The provisions of



the New Zealand Act put the Minister of Mines in the position of having to bargain with the exploration company over what it should or should not do by way of exploration. The Minister is placed in a delicate position for by being too strict he may discourage some operators. Given the lack of experienced government petroleum personnel, the odds are that the companies can out-bargain the Minister. By specifying expenditures for exploration license programs the discretionary element could be removed, leaving only the matter of appraising expenditure claims, and thereby introducing a greater element of certainty into New Zealand's petroleum legislation.

It is to be noted that the Minerals Committee of the National Development Conference heard claims that insufficient work was being undertaken on current prospecting licenses.<sup>73</sup> The Minerals Committee recommended that the Mines Department take any necessary steps to ensure that an adequate work and expenditure program be included in all ... petroleum licenses issued, and that this and other conditions of the license be strictly adhered to. The introduction of the stipulated expenditure condition would ease the supervision problem while at the same time protecting the public interest for in the case of an inadequate work program being carried out, the public coffers





would still benefit, because the difference between the stipulated expenditure and the actual expenditure would be forfeited to the Crown.

Other incentives to actively pursue work programs such as rental rates and area relinquishment are discussed below.<sup>74</sup>

#### The Mining License: Exploration Rights and Obligations

The production or exploitation stage of petroleum activity in New Zealand is regulated by the mining license.<sup>75</sup> The comparative lack of commercial success in the search for hydrocarbons in New Zealand has meant that the terms of the mining license have not been subjected to close scrutiny. How do the New Zealand provisions compare with foreign legislation?

Foreign legislation<sup>76</sup> usually requires the operator to obtain an exploitation lease upon discovery of petroleum in commercial quantity.<sup>77</sup> There can be a difference between enactments as to whether the operator is allowed to appraise the discovery before going to lease, or must go to lease immediately upon discovery. In mature exploitation areas the operator may acquire a lease without discovery.<sup>78</sup> In view of the fact that the operator usually is left with a reduced acreage, greater work obligations, and higher acreage rentals, it seems reasonable to allow appraisal



programs and the evaluation of a strike to be carried out before the operator is required to go to lease.

The exploitation lease is usually for a longer period than the exploration concession e.g. some concessions in the Middle East may be forty years, while Alberta grants a ten year lease which automatically continues until the cessation of commercial production.<sup>79</sup> Thus the operator is granted some security of tenure over his valuable discovery. Short term production leases usually have provision for renewal. The operator is granted the right to drill, win, extract, recovery, produce and transport petroleum.

The high capital costs of industry to some extent ensure prompt development of a discovery, but work obligations are usually imposed either in the form of defined annual expenditure, or value or volume of production, or perhaps in drilling requirements. Offset wells may have to be drilled on a production lease when a discovery is made on an adjoining or nearby lease. Provision for diligence and efficiency in all activities and observance of good oilfield practices are usually strengthened by detailed drilling and production regulations.<sup>80</sup>

Two legislative approaches are evident in foreign statutes concerning petroleum production. The physical



waste of early American oil production led to the establishment of Oil and Gas Conservation Boards to control wasteful production practices. The Canadian legislatures have followed suit<sup>81</sup> but the other Commonwealth legislation studied shows a more unified approach in that conservation measures are incorporated in the principal petroleum statute and its attendant regulations. For instance, a principal conservation measure is that of unitization, i.e. where a petroleum reservoir is found to underlie more than one operator's lease provision is made for the reservoir to be produced as an entirety rather than each operator producing from the reservoir without regard for the other operator(s) or the reservoir energy mechanisms.<sup>82</sup> In Canada the unitization measures are found in Oil and Gas Conservation Acts, whereas other Commonwealth legislation provides for such measures in its principal petroleum statute or regulations.

Numerous other reservations and obligations can befall the successful petroleum explorer. Regulations concerning surface user and compensation are common, as are provisions for storage and transport of petroleum. The producer may be required to refine his production within the country or build a refinery so that refining can be undertaken in the state. Often there will be





found a stipulation to satisfy domestic demand for petroleum before the producer may begin export of his strike. Provision to train nationals in the various aspects of the oil and gas industry, or to employ a minimum (but increasing) percentage of local labour is not unusual. Revenue provisions encompass fees, bonds and securities, rentals, royals, and bonus bid income (for the state) where area relinquishment provisions are found in the legislation<sup>83</sup> and the controlling authority is able to auction released acreage. The operator may be allowed to assign or surrender some or part of his interest in a lease with the controlling authority's approval. Protection of the operator's rights may be guaranteed by contract or by provision for arbitration in the event of disagreement arising. Finally, the local government may make provision for government participation in the petroleum industry, either as a partner in a joint venture or as a state owned enterprise.

In New Zealand the production lease is called a mining license. The basic terms for production are described in little over five pages of the statute book. A petroleum mining license may be granted to any person, authorizing the licensee to mine for petroleum on any land specified in the license.<sup>84</sup> A holder of a prospecting license has the right to exchange his prospecting license for a mining



license provided he has substantially complied with the conditions of his prospecting license and the requirements of the Act.<sup>85</sup> The area of a mining license may not exceed one hundred square miles. There is no limit on the number of mining licenses an operator may hold nor is there any provision as to the shape a mining license might take. The licensee obtains an exclusive right to "mine" for petroleum on the land comprised in the license and for that purpose to carry on mining operations.<sup>86</sup>

A mining license may be granted for a period being not more than forty-two years. Substantial compliance with the terms of the license entitles a licensee to renewal of the license provided the aggregate terms do not exceed sixty-three years.<sup>87</sup> The security of tenure offered to the operator is an inducement in keeping with the intent of the 1937 Act. The term is lengthy in comparison to foreign legislation other than the concessions granted in Africa and the Middle East,<sup>88</sup> although there the concessions rarely provide for renewal after the lengthy initial term. The United Kingdom regulations provide for an initial six year term, which may be renewed for another forty years.<sup>89</sup> Nigeria,<sup>90</sup> like Alberta,<sup>91</sup> provides an initial ten year term, but unlike Alberta makes provision for renewal of whole or part of the lease.<sup>92</sup> Alberta follows the American



concept and allows a lease to continue on the expiration of the ten year term as to that part of the location that is within the spacing unit for each producing well.<sup>93</sup>

The Australian states also have shorter terms,<sup>94</sup> Queensland and Western Australia allowing twenty-one years with a right of renewal. A similar term is found in the Canada Oil and Gas Land regulations.<sup>95</sup>

While the duration of the New Zealand mining license offers security of tenure to the operator, it seems more appropriate to discoveries of natural gas.<sup>96</sup> It seems preferable however that a shorter basic term with renewal provisions or perhaps a thereafter continuum be introduced for petroleum because the industry is too dynamic for rights to be fixed for lengthy periods. When it is considered that in New Zealand mining license conditions may be specified at the time of the prospecting license,<sup>97</sup> it can be seen that not only conditions but technology may become outmoded, and consequently there may be a need for new legislation. Thus the shorter terms seem desirable to allow for contractual change.

The financial provisions for the mining license may be noted shortly. A deposit computed at \$40 per square mile and being not less than \$500 is required before a mining license will be issued.<sup>98</sup> An annual rental is





payable half-yearly at a rate of \$20 per square mile.<sup>99</sup>

Section 12(3) of the Petroleum Act specifies the rate of royalty shall be fixed by the Minister when granting any license and shall not in any case be less than five percent of the value of all crude petroleum, casinghead spirit, and natural gas produced from the land comprised in the license. The selling value is to be agreed upon by the Minister and the licensee, or in default of agreement, as may be fixed by arbitration under the Arbitration Act, 1908. The rental fee is deductible from the annual royalty payment. The licensee is required to furnish the Under-Secretary with a monthly statement of production. All relevant records are to be open for inspection by the Under-Secretary at all reasonable times.<sup>100</sup>

The work obligation of the mining license is briefly stated:

During the term of any license granted under this section, the licensee shall diligently and continuously carry on operations in a workmanlike manner so that the area comprised in the license will be developed in accordance with recognized good oilfield practice.<sup>101</sup>

There may be other work conditions stipulated in the individual mining license, but it is suggested that the liberal and general terms of the 1937 Act are no more clearly seen than in this example. The profit incentive is expected to ensure prompt development of any hydrocarbon discovery.



The huge capital investment in petroleum exploration does suggest that an oil company which discovers hydrocarbons in New Zealand or its offshore waters will be prompt in beginning commercial exploitation. But it must not be forgotten that the major oil companies are huge integrated operations. Thus the mere fact of discovery in or around New Zealand does not automatically mean that production will follow.<sup>102</sup> The economics of major integrated companies demand not only that the companies cost a particular operation, but that they compare and consider other prospective producing areas also. As far as the company is concerned this would merely be an internal accounting procedure, but the effect of such a procedure could have a marked effect on a country such as New Zealand if a marginally profitable discovery was made.

It is submitted therefore that more specific development obligations should be imposed on an operator once a discovery is made. Such stipulations could be expressed in terms of expenditure or work programs or both. Provided this step was taken promptly such conditions should not have an adverse effect on the goodwill of the industry for few New Zealand companies, as yet, have acquired mining licenses in New Zealand. The powers inherent in section 17 of the Act which allow the Minister to revoke a license if he has



reason to believe the licensee has failed to comply or is not making reasonable efforts to comply with any of the conditions have not as yet been used.<sup>103</sup> The imposition of specific work obligations would give greater certainty to such punitive actions, were they necessary.

The other basic mining license provisions seem a little flimsy. When read with the prospecting license provisions, they appear to allow monopolistic tendencies to flourish. Large areas can be held for substantial periods under light rentals and working obligations, if such can be arranged with the Minister. Admittedly the renewed interest in New Zealand's petroleum prospects may be in part due to the laissez-faire attitude of the Mines Department towards the exploration companies.<sup>104</sup> But with the present increased foreign interest in New Zealand's petroleum potential, the current operators' obligations should be firmly enforced so as to avoid any charge of favouritism being levelled at the controlling authority.

It is desirable that interested foreign parties have a chance to join the search for hydrocarbons in New Zealand.<sup>105</sup> A possible answer lies in the use of area relinquishment provisions. These provisions take various guises in overseas legislation. The operator may have to return a percentage of his exploration acreage at stated times during





exploration, or he may have to choose a certain reduced acreage upon discovery or on going to lease for production, or he may have to relinquish exploitation acreage after so many years production. The acreage returned to the controlling authority can then be offered for public auction thereby allowing open market forces to determine the value of the natural resource prospects.

The objects of area relinquishment provisions are two-fold: to avoid long term holdings by encouraging the entry of new operators for a second round of exploratory activities; and to give the state a portion of the fruits of discovery.<sup>106</sup> Most legislation is directed to the former; discovery of petroleum brings the latter into play. There are arguments both for and against the introduction of area relinquishment provisions in New Zealand.

The use of area relinquishment provisions can inject open market forces into an industry noted for its oligopolies. The public sale allows acreage turnover and diversity of participation, principles that Australian operators endorsed when considering recent Australian legislation.<sup>107</sup> Alberta's area reduction provisions have resulted in a:

...multiplicity of mineral rights ownership which has evolved over the years through sale or rental of (petroleum and natural gas rights vested in the Crown and) combined with the commendable desire on the part of the provinces to ensure for all oil producers regardless of corporate affiliations, a



fair share of production, has encouraged rapid resource development.<sup>108</sup>

and the author went on to say that:

the land ownership pattern that has resulted is in contrast with the situation in a number of other oil producing countries, notably the huge oil producers of the Middle East and Venezuela where oil production is the responsibility of a single or small number of concession holders.<sup>109</sup>

The acreage reduction ensures that exploration acreage is diligently explored for two reasons. Firstly, if the exploration acreage is exclusive then the operator will want to obtain all possible geological and geophysical knowledge, thereby obtaining some return for the rental paid. Then at the time of acreage relinquishment he will want to know what acreage to give up and what to keep. The subsurface information should also allow him to make an informed bid at the ensuing auction.

In contrast the absence of area reduction provisions enables an oil company to blanket and retain sole control over an exploration area. The company is thereby able to invest capital on exploratory investigations elsewhere, and on development, transport, and other schemes, rather than spending the money on acreage retention. At the production stage there can be conservation advantages in having a single operator developing a reservoir for the complexities of unitization or joint production activity may be avoided.



It is submitted that the introduction of area relinquishment provisions could provide the necessary catalyst needed to quicken New Zealand's petroleum resource development. As already noted<sup>110</sup> interested parties have been turned from the New Zealand sphere of petroleum activity by the appearance of a closed shop. An opportunity for new ventures to join the field could do no harm. Also the public sales might provide some immediate public revenue for New Zealand's petroleum in place as compared to eventual royalty revenues. There would probably be little yield from unproven or unlikely looking relinquished areas but the object of gaining turnover of the areas would be accomplished. Sales of areas relinquished on discovery could provide substantial revenues<sup>111</sup> if such a scheme were introduced.

To introduce area reduction provisions might require new terms as to shape and size of license areas,<sup>112</sup> but this hurdle negotiated, there seems scope for an area reduction scheme. It may be queried if there would be a need to reduce an operator's exploration area on discovery. New Zealand's offshore and onshore sedimentary areas total some 192,736 square miles<sup>113</sup> and in light of this it might seem preferable to allow a successful operator to retain an area similar to the present mining license, i.e. up to





100 square miles.<sup>114</sup>

A possible compromise may be seen in the recent Australian Offshore Code, in which the discoverer is given a preferred bid on the relinquished acreage. By paying an additional royalty of between one percent and two and a half percent over the entire location the operator is entitled to acquire his released acreage. This should enable an operator to control production from most reservoirs and act as an indirect conservation technique.

The Australian provision was similar to the incentive provision, Oil and Gas Land Order I - 1961, rescinded in May, 1970, which provided that a permit holder in Canada's northern and offshore areas could retain an entire permit under lease by paying an additional royalty rate on production from that portion of the permit which would otherwise be surrendered to the government.

Less need is seen for inserting competitive factors into the exploration stages. Tardiness in the development of hydrocarbon prospects could be regulated by higher rentals, by requiring and supervising development programs, or setting estimated expenditures which if not spent are forfeited to the controlling authority.



## General Comments and Criticisms

### Blurring of Tenement Stages

Petroleum laws tend to utilize the procedures of the petroleum industry to distinguish the different stages at which the operator is required to obtain a new license and thereby authorise the new stage of activity. As can be seen, the New Zealand Act sets out to provide a two-stage system of prospecting (exploration) and mining (exploitation). However, some of the Act's provisions break down the two stage structure.

The wide definition of "mining operations" found in section 2 is the provision that begins the blurring process, for not only does it include within its definition "...mining for petroleum" but also the phrase "...prospecting for petroleum". The provision is found in section 5(3) concerning the prospecting license and section 9(6) concerning the mining license. Thus it could be argued on a literal reading of the subsections that either license could be used for both stages of petroleum activity.

Section 9(3) gives a licensee under a prospecting license the right to apply for and receive a mining license on surrender of his prospecting license. However this procedure is weakened by section 9(1) which allows the



Minister, on application in that behalf, to grant to any person a petroleum mining license. This provision should be read with section 9(10) which states that except as provided in section 9, the grant of a mining license shall in every case be in the absolute discretion of the Minister.

Section 9 reads in a disjointed fashion. The present requirements as stated in section 9(3) that a prospecting licensee who has substantially complied with the conditions of his license and is therefore entitled to a mining license expresses the norm. Any variation from this should only be in the exceptional circumstance. Theoretically such discretion could be said to weaken the the prospecting-mining dichotomy, but in practice an operator requesting a mining license with valid grounds for his request should not be denied.

The strongest criticism however arises from a curious provision introduced in 1955.<sup>115</sup> Section 2 of the Petroleum Amendment Act 1955 orders the Minister, when granting a prospecting license or on the application of a person holding a prospecting license, to specify the conditions to which any mining license granted to the licensee in respect of the land or any part of the land contained in the prospecting license will be subject in the event of the licensee receiving the mining license in exchange





for the prospecting license. Section 9A, which was also introduced in 1955, protects such conditions by preventing any addition to or modification of the conditions so specified without the consent of the licensee. Section 12(3) may also be mentioned here. Under the section the Minister may specify the royalty rate to be paid in any license. A royalty rate specified in a prospecting license is to be transferred to a mining license when granted to a prospecting licensee, i.e. the royalty rate on petroleum production may be specified before exploration begins.

These provisions seem unique. In effect they require the Minister of Mines to prescribe conditions for production of petroleum at the beginning of the search for petroleum. But to ask the Minister to specify conditions of petroleum production before the special factors that surround each hydrocarbon discovery can be ascertained is unrealistic. It may be argued that the Minister need only specify general terms for production, but even general terms could hamper the Minister and derogate from the public's interest in the natural resource if the conditions specified were found to be inappropriate to the particular discovery.

These points appear to blur the distinction made between exploration and exploitation and can be remedied individually. An additional remedy lies in the adoption



of a discovery clause. Discovery of hydrocarbons is used to distinguish the two principal petroleum tenements in much foreign legislation. Usually the operator is required to give prompt notice of discovery to the controlling authority. After a short period for appraising the discovery, the operator will be required to go to lease, i.e. obtain a production license which allows the operator to extract the hydrocarbons from the reservoir. The central issue is whether there is petroleum in commercial quantity,<sup>117</sup> i.e. petroleum of such quantity and quality that it can under ordinary conditions be won with profit once drilling costs have been recovered.<sup>118</sup> Whether the discovery is "commercial" is a question to be decided between the operator and the controlling authority. The question may be a delicate one for what may not be a feasible proposition for the operator may be so for the controlling authority, for the government will be basing its decisions on different economic parameters. In such a case the government may be prepared to subsidize production by the operator, although instances are rare.<sup>119</sup>

Requirements to go to lease are not uniform and often a lease may only be obtainable upon satisfactory completion of exploration programs.<sup>120</sup> The granting of the lease also imposes greater obligations than pertain



under the exploration license, e.g. loss of acreage and higher rentals. Discovery therefore is the feature that distinguishes exploration from exploitation. Not until the time of the grant of an exploitation lease will the factors surrounding the discovery be so evaluated as to permit suitable clauses to be entered in the lease. The Act can specify the general requirements such as duration, basic work obligations, conservation practices, and so on. But questions such as area, royalties, expenditures, bonus and others are subject to the special circumstances of each well and thus open to bargain. The present provisions of the New Zealand Act may give some certainty for the oil companies operating schedules, but at the same time the government's hands are tied unnecessarily early. Detailed regulations, as found in Queensland and Alberta would not only give the government flexibility in specifying details of prospecting and mining licenses, but also give greater certainty and direction to the industry's practices.

In sum, it is considered there are parts of the present New Zealand Act that confuse the principal stages of petroleum production. It is submitted that the introduction of a discovery clause in the legislation would delineate the two principal tenements more clearly. Also the operators' rights and obligations should be specified





more clearly for each tenement, perhaps through regulations, and thus less strain put on the imagination of the Minister and the goodwill of the industry.

### Ministerial Discretion and Flexibility

A conspicuous feature of the Petroleum Act 1937 is the tremendous amount of discretion placed in the hands of the Minister of Mines. Consequent upon the granted discretion is the power to affect all the stages of New Zealand's petroleum development, from the grant of prospecting (exploration) licenses to the export of petroleum. A cursory reading of the Act reveals the extent of the Minister's power, which is effected through the use of phrases that can be found scattered throughout the Act such as "may from time to time grant", "as he thinks fit", "to require", "in his discretion", "may suspend", "be satisfied", "to determine", "may revoke", "in his absolute discretion", "shall be fixed by", "to direct", "may order", "may refuse his consent", and "has reason to believe".

An explanation of the draftsman's intent may be attempted. By giving the Minister power to grant or withhold applications for licenses and to specify conditions in licenses, the legislation places the Minister in a position to dictate the bargain. A simile between the



potentates of the Middle East and the Minister of Mines might be drawn (although it will be noted that while the potentates thought a good bargain was made, in fact the major oil companies gained control of the Middle East oil on unconscionably good terms). Government is enabled to make such terms as it sees fit in issuing licenses and the public's interest is thereby protected. A background factor may have been an awareness of the mixed socio-economic-political issues in the development of natural resources and especially petroleum. Also the discretionary powers could to some extent disguise the Mines Department's lack of sufficient personnel experienced in the oil and gas industry.<sup>121</sup>

It could also be argued that the Minister's discretionary powers give the legislation the flexibility necessary to deal with the everchanging dynamics of the oil and gas industry. But such flexibility may be bought at a high price, namely industrial apprehension as to possible administrative disparities in the treatment of different operators, and possibly loss of investor confidence. Discretionary powers can all too easily be laid open to charges of abuse and uncertainty.

Comments on the detailed nature of Canada's oil and gas legislation have already been made. It is instructive



to look at the process by which such regulation has been achieved. There is evidence of co-operation and harmony between government and industry. The oil industry is frequently consulted when government is considering aspects of the oil industry in Canada. Legislation committees of the Canadian Petroleum Association and the Independent Producer Association of Canada take for granted that Ministers will hear their requests for new legislation and will circulate draft statutes for discussion and advice.<sup>122</sup> When the Alberta Mines and Minerals Act underwent major revision in 1962, the industry was invited to present briefs to an Oil and Gas Revision Committee comprised of representatives of the government and of the petroleum associations. Within parameters set in the public interest by the government, industry representatives were encouraged to compromise their differences and write their own legislation. Recent reports on petroleum prices in British Columbia<sup>123</sup> and petroleum marketing in Alberta<sup>124</sup> have similarly drawn on briefs from the industry. As Dr. Thompson observed:

Given experienced government ministers and mutual confidence between government and industry representatives, the process combines pragmatic solutions to problems with a clear definition of the public interest.<sup>125</sup>

Another important facet of the Canadian scene must





mentioned. It has been suggested by Dr. Thompson<sup>126</sup> that the oil producing jurisdictions in Canada have developed a legal mechanism for controlling oil agreements so that the relationship between the government and the oil company can be made responsive to charges which the public interest dictates. This mechanism is a clause in oil agreements requiring the oil company to accept as binding all legislative and regulatory changes which may be enacted or promulgated from time to time. For instance the condition as to compliance with the laws in the 21 year lease form applicable under the Alberta Mines and Minerals Act 1962 reads:

That the lessee at all times shall perform, observe and comply with the provisions of the Mines and Minerals Act, and any regulations that at anytime may be made under the authority of the said Act or any Act or Acts passed in substitution therefore, and all such provisions and regulations that prescribe, relate to or affect the rights, obligations, privileges and restrictions of and upon lessees of petroleum and natural gas rights, the property of the Crown, shall be deemed to be incorporated into these presents and shall bind the lessee in the same manner and to the same extent as if the same were set out herein as covenants on the part of the lessee; provided that each and every provision, order or regulation hereafter made shall be deemed to be incorporated into these presents and shall bind the lessee as and from the date it is made, and in the event of conflict between any order or regulation hereafter made and any order or regulation previously made the order or regulation last made shall prevail.

This condition imposes on the grantee an acceptance



of future legislative alterations in the terms of a lease. But in fact such provision could only be tolerated by the oil industry in an area with relatively stable political conditions and government-industrial co-operation. The "mechanism for legislation by contract" has enabled government to respond to the rapid changes in the oil industry. Changes have been made in the Alberta royalty schedules in 1952 and 1962.<sup>127</sup> In 1961 the primary tenure of twenty-one years plus renewal of all the acreage under an Alberta lease if the lessee gained production anywhere on the lease was altered to create a faster turnover of acreage.<sup>128</sup> The primary term of new Crown leases and renewals of existing leases became ten years and renewal thereafter continued just as to the producing and unitized acreage. No complaints were heard and as Dr. Thompson concluded:<sup>128</sup>

the...long records of investor and public confidence in the management of the petroleum resources...in Western Canada... owe no small measure of indebtedness to the fact that lawyers have been able to devise a legal mechanism that has forestalled the straitjacketing of public policy by oil agreements. Public administrators, aware that they have the power to introduce and implement new policies, are the more prone to be cautious and responsible to change.

In contrast the concession agreements of South America, Africa, and the Middle East with their endless duration clauses have proved inflexible. The conflict



between the rights of security of tenure and sanctity of contract against the rising of national sovereignty was inevitable. As Mughraby stated in his study of Permanent Sovereignty Over Oil Resources<sup>130</sup> the legal systems of many Middle East oil producing countries failed to develop effective bodies of rules to control and regulate relations with oil concessionaires, thereby leaving the oil concession document itself as the controlling regime.<sup>131</sup> Thus the entrenched conditions of the contracts inevitably became the target of dispute as enlightened Middle East governments tried to retrieve and protect the public's interest in their natural resources.<sup>132</sup>

It may be said that two principal conditions of petroleum laws that concern the public and their interest in the nation's natural resources are those which deal with the duration of permits and leases and the entrenchment of royalty rates. In New Zealand the prospecting (exploration) license endures for five years and is renewable for a further five years. A mining (exploitation) license may be held for a period of up to 42 years (renewable to 63).

The Petroleum Act at present merely states that the rate of royalty may be specified in any license, the rate not to be less than five per cent. If the terms of a







mining lease were agreed at the time of the prospecting license<sup>133</sup> then the Crown might well be obliged to watch both the exploration for and the exploitation of a petroleum resource under terms not cognizant with the public interest or other surrounding circumstances. There could be public hostility and charges of monopoly, of undue exploitation, and of a "sell-out" of resources.<sup>134</sup> In turn this could force government into introducing legislation that would amount to an alteration of the operator's license, a virtual unilateral alteration of the contract, and a step that would inevitably affect the confidence of investors in the climate of mineral investment in New Zealand.

It is submitted that the two key provisions concerning the public's interest in New Zealand's petroleum resource future are too inflexible, notwithstanding the Minister of Mines considerable discretionary powers. Alberta legislation provides guidelines that could be followed, namely tenures of ten years and 21 years for oil and natural gas producing wells respectively, with provision for automatic renewal in the event of continued commercial production.<sup>135</sup> In the case of royalties it is suggested that a clearly stated royalty rate, based on a sliding scale of production, would be preferable.<sup>136</sup> Such a



schedule would inform the public of possible revenues obtainable from the exploitation of the state's natural resources, and also inform the oil companies of one of their principal exploitation costs, rather than leaving the matter open to bargain as it appears at present. Periodic revision of fiscal measures, provided fair warning is given to the industry, can ensure the schedules do not become inappropriate to changing circumstances.<sup>137</sup> Thus better safeguard is given to the public interest.

In sum it is considered that the discretionary powers of the Minister should be replaced by more detailed legislation, guidance for which can best be found in Western Canada, due regard being given to New Zealand's differences. Clearly stated legislative parameters can lead to greater industrial certainty in exploration and production. The aid of the industry itself in formulating new guidelines is not to be overlooked. The introduction of a compliance with laws provision may be debated but it does provide a legal mechanism for change rather than forcing outright confiscation measures to be taken. The public interest in petroleum resource development demands that the present duration and royalty provisions be made more flexible and responsive to public demands.

Time may be taken here to make a short comment on



on petroleum resource administration.

The Alberta provincial administration has grown with the province's developing petroleum industry. The formal stages of oil and gas development are controlled through the Mines and Minerals Department, while the Oil and Gas Conservation Board, first set up in 1938, supervises the actual methods of exploration and exploitation. The administration is based on American models. It is submitted such a system is not necessary in the New Zealand context at present in view of the different surrounding circumstances, but the Canadian experience can be drawn on for guidelines in the development of an indigenous oil and gas industry. Provision could be made in the Mines Department for a Petroleum Authority. While there may be as yet few men sufficiently experienced in New Zealand to negotiate with the oil companies, the development of expertise in the industry can be rapid, as illustrated by the changed status of the OPEC<sup>138</sup> countries vis-a-vis the "majors" in the last 14 years,<sup>139</sup> the result of hard work by a comparatively small number of persons becoming experts in the petroleum industry in the 1950's.

As New Zealand government personnel gain experience of the idiosyncracies of oil and gas development greater co-operation and harmony may be expected, rather than the current





attitude which seems to be an implicit trust in the good behaviour of the oil companies.

Distinction: Oil and Natural Gas

The duration of the licenses in New Zealand obscures an issue that may be raised if tenement durations are altered. The two principal products of a hydrocarbon reservoir are oil and natural gas. While both are hydrocarbons they are markedly different in their characteristics. Compared to the liquid products of the reservoir, natural gas is volatile and not as easily or safely transportable to the market place and areas of consumption. Admittedly, the use of natural gas in liquified, i.e. high pressure, form has allowed natural gas to reach new markets. However the principal form of transport for natural gas is the pipeline, which has proved the most economic form of transport and saved storage problems by allowing the gas to flow safely and directly from wellhead to consumer.

The initial costs of natural gas exploitation are very high, involving the building of production, processing and transport facilities. The operator, in order to make such an investment, must be confident of retaining his tenement for a long period, be able to hold the tenement at low cost until the natural gas is "on stream", and



during production pay fixed royalties.

The present New Zealand legislation seems more suited to these conditions than those pertaining to the production of oil. However, if new legislation introduced terms altering primary tenures and fiscal provisions, separate provision should be made for natural gas production licenses. Examples can be seen in the United Kingdom and Alberta legislation. The United Kingdom created a methane drainage license to control its North Sea production.<sup>140</sup> The Alberta Natural Gas License Regulations 1962 virtually create a separate code for natural gas. Dr. Thompson has described the difference in this way:<sup>141</sup>

...the relinquishment provisions, whereby parts of the natural gas license must be surrendered to the Crown, are designed to permit the discoverer of natural gas to obtain under lease all of the producing zone which his discovery and development wells may delineate including an entire gas field if one is proved within the limits of the licence, whereas the oil discoverer is subject to terms of relinquishment which probably will require him to surrender some of the producing formation back to the Crown to be sold by the Crown at public tender as Crown reserves. The duration of the Crown natural gas lease is twenty-one years renewable for further terms of twenty-one years so long as natural gas may be produced in commercial quantities, whereas the duration of the Crown oil and gas lease is only ten years with renewal thereafter limited to those portions of the lease on which there are producing wells. The rentals for natural gas licenses and leases are lower than for the equivalent oil and gas tenements. Finally, the royalty rate on gas is a fixed rate of sixteen and two-thirds percent, whereas the royalty rate on oil varies from eight



percent to sixteen and two-thirds percent according to the monthly production per well.

The development of the Kapuni natural gas strike in New Zealand has contributed to the current public interest in the nation's natural resources. The pipeline that now links Auckland and Wellington will serve to remind the public of New Zealand's hydrocarbon potential. Also the pipeline should remind government that different products are found in hydrocarbon reservoirs and of the completely different problems that may face a successful petroleum explorer. The present legislation is not unsuited to the needs of the discoverer of a natural gas strike, but it is seriously queried whether such legislation is appropriate to an oil strike. If new legislation is introduced, cognizance should be taken of the differences between oil and natural gas and the dichotomous approach of mature oil and gas legal systems considered.

### Conservation

The laws and treatises concerning conservation of oil and gas resources are so numerous as to make it clear that the topic is worthy of separate study.<sup>142</sup> In this text however it will suffice to define the subject, to indicate the principal aspects, and suggest what form such legislation could take in the New Zealand environment.





Conservation in its common sense means saving or preserving for future use. Where a resource is in short supply, conservation may mean that an inferior end-use may be prohibited. But in oil and gas law conservation has a special historical meaning: to prevent waste, and to protect correlative rights.

To explain this definition a brief historical look at the American oil and gas industry is necessary. Early American petroleum production was characterised by ignorance of petroleum reservoir engineering, wasteful overproduction, the rule of capture, and the individual ethic. Early production simply consisted of drilling until oil was struck, letting the petroleum gush out, and abandoning the well when the flow stopped. Because little was known of the mechanics of petroleum reservoirs<sup>143</sup> vast amounts of oil became irrecoverable and millions of cubic feet of gas were burnt or vented. As knowledge of the reservoir energy mechanics improved, measures such as production control rates, pressure maintenance, and secondary recovery techniques were implemented. But those advocating these anti-waste measures had an uphill fight against the individual ethic, (for there was no public ownership of mineral resources), and the evolution of the rule of capture to protect the landowners' interest in the minerals underlying his land:



cujus est solum, ejus est usque ad coelum et ad inferos.

The American courts noted the fugacious nature of petroleum and evolved the rule of capture from analogies of percolating waters and wild animals. In effect this meant that the landowner who knew he had petroleum underneath his land drilled and produced as quickly as he could for his neighbour would be busy emulating him. Thus there was little regard for future supplies and reservoir mechanics, rather it was a case of drill now or lose your profits. Thousands of unnecessary wells were drilled, excess production depleted reservoir energy leaving oil and gas wasting in the ground and excess oil was stored in open pits where it evaporated, burned, or was lost.

Consequently early American conservation laws dealt with obvious waste problems such as improper well abandonment, gas dissipation, damage to petroleum bearing strata, and protection of the correlative rights of the individual landowners. As technical knowledge of the behaviour of oil and gas in underground reservoirs improved, so came the development of the idea of maximum recovery consistent with reasonable economy. But it was not until the 1930's that the conservationists' cause became popular. Oversupply from the major discoveries in the Oklahoma and East Texas fields, combined with the Depression, made the waste of the nation's hydrocarbon resources apparent to all.



The Interstate Oil Compact Commission was established by the principal oil producing states and with its valuable guidance the American states introduced legislation to prevent further physical and economic waste of the world's primary non-renewable energy resource.

The principal aspects of present day conservation laws concern well spacing, unitization, pooling, reservoir energy, pressure maintenance, secondary recovery and cycling, reservoir protection, and storage. Three other headings with a more distinct economic content are pro-rationing, common purchaser, and common carrier provisions. The objective of a conservation law has been described by the Interstate Oil Compact Commission in this way:<sup>144</sup>

It is hereby declared to be in the public interest to foster, to encourage, and to promote the development, production, and utilization of natural resources of oil and gas in the state in such a manner as will prevent waste; to authorize and to provide for the operation and development of oil and gas properties in such a manner that a greater ultimate recovery of oil and gas be had and that the correlative rights of all owners be fully protected; and to encourage and to authorize cycling, re-cycling, pressure maintenance, and secondary recovery operations in order that the greatest possible economic recovery of oil and gas be obtained within the state to the end that the land owners, the royalty owners, the producers, and the general public realize and enjoy the greatest possible good from these vital natural resources.

As can be seen, an essential feature is the prevention of waste. The Alberta Oil and Gas Conservation Act





1969 defines waste, in addition to its ordinary meaning, as meaning wasteful operations which are subsequently defined at length, viz:

45. "wasteful operations" means:

- (i) the locating, spacing, drilling, equipping, completing, operating or producing of a well in a manner that results or tends to result in reducing the quantity of oil, gas or crude bitumen ultimately recoverable from a pool or oil sands deposit under sound engineering and economic principles, or
- (ii) the locating, drilling, equipping, completing, operating or producing of a well in a manner that causes or tends to cause excessive surface loss or destruction of oil, gas or crude bitumen, or
- (iii) the inefficient, excessive, or improper use or dissipation of reservoir energy however caused, or
- (iv) the failure to use suitable enhanced recovery operations in a pool where it appears probable on the basis of available information that such methods would result in increasing the quantity of oil or gas ultimately recoverable from the pool under sound engineering and economic principles, or
- (v) the escape or the flaring of gas, if it is estimated that, in the public interest and in the light of economics and the risk factor involved, the gas could be gathered, processed if necessary, and it or the products therefrom marketed, stored for future marketing, or beneficially injected into an underground reservoir, or
- (vi) the inefficient storing of oil, gas or



crude bitumen, whether on the surface or underground, or

- (vii) the production of oil, gas or crude bitumen in excess of proper storage facilities or of transportation and marketing facilities or of market demand therefor;.

Such a wide definition of waste is basic to conservation law for it defines the aspects of petroleum production that the supervising authority will be concerned with. Some elucidation of the principal measures may be attempted.

The concept of well spacing arose to prevent unnecessary wells being bored. Early erroneous beliefs led to forests of derricks littering oil fields. The results were inevitable: increased fire and other accident hazards, excessive production which caused surface waste, dissipated reservoir energy and incalculable quantities of oil and gas lost. Today it is common for drilling spacing units to be prescribed. Oil wells are situated on forty or eighty acre units while 640 acre units are considered effective for draining a gas reservoir.<sup>145</sup> Thus labour, materials, and money are saved and diverted to new exploration areas.

Unitization and pooling describe procedures used to join operators in production of a reservoir and a drilling spacing unit respectively. Unitization is the consolida-



tion of separately owned tracts over a reservoir into a fieldwide unit and the operation of the whole (or part of the) reservoir as a single unit. Pooling on the other hand integrates the separate interests within a drilling spacing unit established by the conservation board so that the owners share in the production from the single well allowed to be drilled on the drilling spacing unit. Thus wasteful competitive drilling and production practices are prevented, either on a voluntary or compulsory basis, as the laws and the particular landowners permit and desire.

Essential to all modern conservation laws is the prevention of inefficient use of reservoir energy. To understand this objective reference should be made to the Appendix which shortly describes the characteristics of a petroleum reservoir. The reservoir has inherent energies to expel a certain amount of the hydrocarbons from the reservoir to the surface, namely a solution gas drive, gas cap drive, and water drive. Two minor forces may also help: compression of the oil itself and gravity drainage. One or several of these processes may be present in any one reservoir. To efficiently utilize these energies constitutes a fundamental basic for conservation measures today. Well spacing control has been mentioned. Other measures to avoid dissipation of reservoir energy are





production control rates, and limitations on producing gas-oil ratios. Reservoir engineers have developed the concept of Maximum Efficient Rate (M.E.R.), the maximum rate at which a reservoir can be exploited without reducing the ultimate amount of oil and gas recoverable. The M.E.R. is not necessarily the most efficient rate, by which a reservoir might be produced more slowly for a greater total production. However, such a production rate may have the disadvantage of causing a shortage in supply, and also increase the operators' expenses. Reservoir energy loss can also be controlled by gas-oil or water-oil ratios during production. The gas-oil ratio is the number of cubic feet of gas produced per barrel of oil. The oil-water ratio indicates the relationship between the volume of water and volume of oil produced from a well. High ratios can indicate the loss of reservoir energy forces such as the escape of too much gas or the excessively rapid influx of water into the petroleum reservoir.

Measures to enhance recovery of petroleum from a reservoir are linked to reservoir energy conservation techniques. Cycling is the process whereby valuable wet hydrocarbons (ethane, propane, butane) are extracted from the reservoir gas as it is produced, the remainder



being compressed and then injected back into the reservoir to maintain pressure. As production continues the injected dry gas progressively replaces the wet reservoir gas. Care has to be exercised for if pressure drops too low the wet components of the gas start to condense within the reservoir, and can be left behind in the pore space of the rock. Pressure maintenance is the injection of water or gas into the reservoir to maintain pressure. Secondary recovery describes pressure maintenance measures being used on a field whose energy mechanisms are completely worn out. Usually the method involves injection of water or gas into selected input wells. The injected substance drives the oil before it to the production well. Perfection of methods of primary recovery and pressure maintenance should reduce the need for secondary recovery operations.

Another important objective of petroleum conservation is the protection of the reservoir. The essential requirements concern the casing of and the abandonment of wells. These provisions ensure that oil and gas are not lost by escape from the strata in which they are found and that the reservoir is not injured by the entrance of water. Other results are protection of water from pollution and damage to coal and other mineral deposits.



The casing prevents the bore collapsing and permits the control of well pressure. Well casing consists of the insertion and cementing in the bore rings of heavy steel pipe, thus sealing off fluids from the hole and preventing cave-ins. The surface pipe conducts drilling fluid to deeper formations, protects other strata, and supports deeper casing. A blow-out preventer is attached at the surface to control well pressure. The production string conducts oil and gas to the surface and also confines fluids to their respective strata. Well abandonment provisions usually require notice to the supervising authority and plugging of the well in an approved manner.

Another aspect of reservoir protection is the operator's obligation to keep separate each field discovered in a lease area. The mingling of different strata's production may cause waste for the fields may have different energy mechanisms and pressure characteristics. Mingling of production may be authorized if approved by the conservation authority.

Provision for storage of hydrocarbons is a common conservation measure. In America, underground storage of both natural gas and liquefied petroleum gas in old, spent reservoirs is becoming more common. Since the introduction of prorationing measures (post) storage regulation has





proved less necessary although sufficient storage facilities for production must still be provided. The open earth dam for excess production is a fading memory.

It was stated that some conservation measures had a greater economic content. An early and hotly disputed measure to prevent wasteful production in America was prorationing, i.e. the assessing of the demand for crude oil or natural gas (usually for a one-month period) and the allocation of the amount demanded among the fields, pools and individual producers in the state. Allocation of allowable production among producers is complicated by the variation in characteristics of each petroleum reservoir, such as location, depth, structures, pressures, types of crude produced, and so on. Conservation authorities have to consider acreage, bottom-hole pressures, thickness of hydrocarbon bearing strata, and the amount of recoverable oil in place.<sup>146</sup> By these yardsticks the state tries to give each operator an equal opportunity to produce the oil underlying his tract. Prorationing has been criticised as a price maintenance scheme but it seems to have played an integral part in conserving North American oil resources.<sup>147</sup> It should be kept in mind that prorationing is a technique for controlling overproduction, which is hardly the case in New Zealand at present.



Another provision commonly found in North American conservation statutes concerns the purchase and transport of the reservoir products. It is little use for the operator to be allowed to produce his allowable quota and then find nobody prepared to buy or convey the oil to a market. The waste can be immediate. Legislative provision is therefore made so persons can be declared common purchasers or common carriers of oil from designated pools. A common purchaser would be required to purchase oil or gas without discrimination in favour of his own production. A common carrier provision will require a pipe line proprietor to carry oil, gas or synthetic crude without discrimination in favour of his own production. Common processor provisions may complete the petroleum cycle by ordering a processor to process oil owned by another.

Overlying these provisions is the requirement of full disclosure of operations by the operator to the conservation authority. The information is usually kept confidential for a defined period, as the petroleum industry is a highly competitive business. The operator is usually required to make tests and take samples, file reports, and send well-logs, samples and well-cores to the conservation authority. The state is thereby able to keep a check on activity and at the same time build a wealth of geological



knowledge of the country.

Several other background factors should be mentioned before considering the Petroleum Act 1937. The aspects considered above are common to most American and Canadian conservation statutes. The conditions that led to the evolution of conservation legislation and administrative authorities there are not to be found in New Zealand. Petroleum in much of the United States and parts of Canada was privately owned and only when the problem of waste became serious did conservation legislation appear. In contrast, ownership of oil and gas in New Zealand is vested in the Crown who, in turn, has been able and has regulated exploration activity in a manner not seen in much of the United States. Waste prevention, far from being a separate chapter of oil and gas law, has merely been an aspect of Crown control.

The fact that the Crown owns the petroleum in New Zealand has reduced the emphasis on the second part of conservation law, namely protection of correlative rights. Private ownership of oil and gas in the United States led to a splintering in the interests attached to the land and petroleum below. The courts were called upon to protect the various interests that became involved in the production of each reservoir. The divided ownership problem is not,





however, found in New Zealand for the lessor is always the same person, the Crown. Also, large exploration and exploitation areas are granted and the chance of more than one operator producing from a pool is substantially lessened. With the Crown as a common lessor, unitization procedures are greatly simplified.

It has been mentioned that conservation forms a separate chapter in American oil and gas law. The structural differences are quite substantial and may be illustrated by Alberta, the principal petroleum producing province in Canada. Although most of Alberta's mineral rights are vested in the Crown the province's policy has been to encourage multiple ownership of mineral rights, resulting in similar ownership patterns to those found in the United States. The permits, reservations, and leases are administered by the Department of Mines and Minerals. But the Oil and Gas Conservation Board<sup>148</sup> supervises the drilling and production of petroleum in Alberta from both freehold and Crown leases.<sup>149</sup> The New Zealand Act, in common with most other Commonwealth legislation, provides for all activity under the Act to be administered and supervised by a single government department, in New Zealand being the Mines Department. Correspondingly, all the relevant legislation falls under one principal Act.



When the Petroleum Act was passed by Parliament in 1937, the lawmakers were able to draw on the American experience and indeed their own foresight, for as early as 1911 the New Zealand legislature had shown an appreciation of the problems in conservation of oil and gas.

The passage of time meant that by 1937 the wasteful methods of early producers had been discarded in favour of more scientific and expert techniques. Because of the higher costs of improved methods, the exploration companies in New Zealand have, for the most part, been large concerns with overseas backing, technical resources and ability. The large firms, conscious of the value of goodwill, have evinced responsible attitudes. Finally a point made in regard to comments about the mining license may be repeated, i.e. that the comparative lack of commercial success in New Zealand has meant that there has been little incentive for amending statutory conservation provisions while the matter remained theoretical. The recent discoveries are likely to alter this attitude. The differences between North American and New Zealand practices and attitudes must be remembered. The American and Canadian legislation can provide ready guidelines for new conservation measures but the different circumstances of New Zealand's industry may mean different approaches will be taken to solve the



various problems.

The 1937 Act has a few sections that indicate conservation measures, while not of primary import, were considered. But the provisions resemble early American conservation laws in that they deal with the more easily recognized forms of waste, such as surface spillage and water pollution. Detailed provisions on well-spacing, pressure maintenance and enhanced recovery are not mentioned. But there is provision for unitization,<sup>150</sup> for disclosure of operations,<sup>151</sup> and that in the term of a mining license the licensee diligently carry on operations in a workmanlike manner so that the area comprised in the license be developed in accordance with recognised good oilfield practice.<sup>152</sup> Section 42 authorizes the regulations that may be made under the Act and here the draftsman has shown cognisance of foreign conservation measures, as can be shortly shown. Section 42(1) enables the Governor-General by Order in Council to make such regulations as in his opinion may be necessary or expedient for giving full effect to the provisions of the Act and the due administration thereof. This general power is then followed by a number of general purposes, many of which are direct conservation measures, e.g.:

(j) Preventing or abating nuisances in or about





petroleum works, and cleansing and keeping clean the same, and preventing the pollution of the seashore or the sea or inland waters in connection with mining operations:

- (k) Prescribing safety precautions in mining operations, and the treatment of water above and below the ground, and preventing waste or loss of petroleum or gas:
- (l) Prescribing drilling machinery, materials, and casing to be used in mining operations, and prohibiting the use of other classes thereof:
- (m) Regulating the storage, transportation, and utilisation of petroleum produced in New Zealand and products of such petroleum, and, in particular, the spacing of storage tanks:
- (n) Prohibiting or regulating mining operations by licensees near the boundaries of the land comprised in their licenses, and near land comprised in other licenses:
- (o) Regulating the cessation of mining operations and the abandonment of oil wells; and prescribing precautions against flooding:
- (p) Providing that mining operations are carried out with due diligence and by safe and satisfactory methods:
- (q) Requiring licensees and other persons owing or operating pipe lines to convey therein at reasonable rates petroleum belonging to the Crown, and prescribing rates therefor:
- (r) Generally regulating mining operations:.

Other purposes stated include the keeping of records and furnishing of information, duties of licensees, and qualifications of persons in charge of mining operations. Thus the power to promulgate conservation regulations seems



clearly inherent in the 1937 Act. The regulations<sup>153</sup> themselves however, show little inclination to state in detailed form the conservation measures of modern petroleum production. Rather, they are concerned with setting a safe stage for operations by requiring experienced drilling overseers<sup>154</sup> and safe equipment and machinery.<sup>155</sup>

As an Australian commentator has observed,<sup>156</sup> there are many indirect ways in which waste of oil and gas can be prevented. The Mines Department has supervisory power over all stages of petroleum activity in New Zealand and this enables conservation measures to be implemented without direct reference to the petroleum legislation. For instance, every applicant for a license has to furnish the Minister with satisfactory evidence of his financial and technical qualifications and ability to comply with the Act and regulations.<sup>157</sup> A bond has to be supplied which is liable to forfeiture for failure to comply with the terms of a license or to restore any personal or real property that may have been damaged by the licensee.<sup>158</sup> Disclosure provisions include the submission of exploration plans in some cases and the procedures the licensee will use in drilling the well.<sup>159</sup> Inspectors are given powers to enter petroleum works and inspect operations.<sup>160</sup> The



Inspectors can direct operators to carry out operations and order them to take steps to avoid waste.<sup>161</sup> Prosecution may follow non-compliance.<sup>162</sup>

Section 9 (2) of the Act requires mining licensees to act in a good and workmanlike manner to develop the area in accordance with recognised good oilfield practice. This provision is repeated in the regulations (Section 25: "... methods and practice customarily used in good oilfield practice."). The requirement is flexible for as the industry's techniques improve, so does the duty become more onerous. However, there is a penumbra of uncertainty in the regulation for what may be regarded as good oilfield practice by one operator may not be so regarded by another, or more importantly, the Mines Department Inspector. The prescription of more detailed drilling and production regulations such as Queensland's<sup>163</sup> would give a more certain content to this general requirement.

There are some direct conservation measures in the New Zealand Act and regulations that may be shortly commented upon. The large areas given for prospecting and mining for petroleum is a primary conservation measure for it effectively prevents different operators drilling wells in a small area. There are no specific well spacing provisions in the New Zealand Act but good oilfield practice





today means that an operator would not overdrill a petroleum bearing strata. There is power under the Petroleum Act Section 42 (1) (n) to prohibit or regulate mining operations by licensees near the boundaries of the land comprised in a license, and near land comprised in another license. Some control over the drilling of wells is found in the Petroleum Regulations, sections 20 and 21 which require notification to the Under-Secretary and Inspector of the site and commencement of wells. But the regulations are permissive and it would give greater certainty if a spacing pattern, i.e. the number of producing wells that may be drilled in an area, were prescribed.

Unitization provisions in the New Zealand Act reiterate the different philosophies of individual freedom found in New Zealand and North America. The large license areas reduce the chance of a reservoir being the subject of multiple competitive production. In the event of more than one licensee being able to exploit a single petroleum reservoir in New Zealand, the Minister may require the licensees to co-operate in the preparation of a development scheme for co-operative working of the oilfield as a unit.<sup>164</sup> The scheme has to be approved by the Minister of Mines and if not submitted in the time prescribed by the Minister, or if the scheme fails to win his approval, the Minister can



prepare a scheme fair and equitable to the licensees.<sup>165</sup>

If a licensee objects to the Minister's proposals, the matter may be referred to arbitration.<sup>166</sup> However, these compulsory provisions should be little used as few licensees will be affected by oilfields extending outside their license areas, in which case voluntary agreement should be more easily achieved. It may be noted that the Minister has the power on application of a licensee, to add adjoining land to a license.<sup>167</sup> Thus in the event of a licensee finding an oilfield that extends outside his license area into an unlicensed area, the Minister could include the additional area in the license, or perhaps join the Crown in the venture by acquiring the license for the Crown.<sup>168</sup>

Because of the large areas granted to licensees and the lack of well spacing provisions, pooling regulations seem unnecessary. If needed, the general power under section 42 of the Act could be utilized, and as the step involves the upsetting of individual rights, any new provision should be clearly drafted.

Reservoir energy requirements are not expressly mentioned in the New Zealand legislation, although the licensee is required to control the flow and prevent the escape or waste of petroleum discovered in or obtained from the area comprised in the license.<sup>169</sup> There is no mention



of M.E.R. or gas-oil or water-oil ratios. An inspector could perhaps use the regulation to reduce production rates if waste could be shown. The purposes listed under section 42 of the Act allow regulations to be made preventing the dissipation of reservoir energy mechanisms.

Enhanced recovery provisions are not mentioned in the New Zealand legislation. Pressure maintenance, cycling, and secondary recovery are techniques common in modern oil-field practice and could if necessary be prescribed under the general regulation making power. It would strengthen such provision if the Minister could order such a scheme, as would appear to be permitted in Victoria, Queensland, South Australia, and Alberta.<sup>170</sup>

The New Zealand legislation does have provisions protecting the reservoir. The licensee is required to conserve the area comprised in the license for productive operations: to prevent damage to neighbouring petroleum-bearing strata; to prevent, by means of casing of adequate strength, the entrance of water through wells to petroleum-bearing strata; and when abandoning a well, to plug the same to the satisfaction of the Inspector.<sup>171</sup> There are also provisions protecting surrounding water areas, mines, and coal seams.<sup>172</sup> It may be pointed out that section 25 (1) (d)

of the regulations could be read to prevent the injection of





water into a petroleum reservoir under an enhanced recovery scheme. Also there is no provision concerning the commingling of production from different strata from a single well. It is submitted that more specific regulations could be passed to give guidance to the operator's well casing, production, and well abandonment methods.<sup>173</sup>

Under section 27 of the Petroleum Regulations a licensee is required to use methods and practice customarily used in good oilfield practice for confining the petroleum and natural gas obtained from the license area in tanks, pipes, pipelines, or other receptacles constructed for that purpose. A stipulation with Alleghany overtones is that no petroleum shall, save as a temporary measure during an emergency, be placed or kept in an earthen reservoir. Modern oilfield practices today result in there being little storage of petroleum products in the well vicinity as pipelines are constructed to take the oil and gas direct to the refineries and markets. Underground storage of natural gas at a location proximate to the consumer is a new feature of North American practice, but there is no provision for such in New Zealand. The general obligations of section 25 of the Regulations, coupled with section 27 of the Regulations, are sufficient to enforce efficient storage for oil and gas in New Zealand. The regulatory power of section



42 (2) (m) could be used to make more detailed provisions controlling improper storage.

New Zealand's conservation legislation is clearly aimed at physical waste. The present problem is to find oil and achieve self-sufficiency. The limiting of excess production is still a distant and hopeful prospect. Thus provision for limiting production to market demand is not found in the New Zealand legislation. If the situation of oversupply was ever to arise in New Zealand, the licensees would presumably obey market forces and cut back production. However this voluntary course might harm some producers, especially those relying on other companies' transport and refining facilities. The general power of the Governor-General could be used to remedy the situation, preferably before such conflicts appeared.

An alternative would of course be that of exporting the petroleum.

To some extent recent additions to the Petroleum Act have forestalled some of the problems facing the producer without transport and processing facilities.<sup>174</sup> The natural gas discovery at Kapuni led to the legislature passing provisions to control the construction and use of pipelines in New Zealand. A person other than the authorized pipeline owner may use the pipeline with the owner's consent.



Also there is a provision for the Minister of Mines, on application, to order that an applicant's oil or natural gas be conveyed in an authorized pipeline, after considering any prejudice to the proper and efficient operation of the pipeline and the quantities of hydrocarbons being conveyed on behalf of other users of the pipeline. The Minister can specify conditions of time and charges in such order and may make variations in such orders at the owner's request.

The 1962 Petroleum Amendment (section 2) also empowered the Minister, on application of a licensee directed to refine his petroleum in New Zealand (under section 13 of the 1937 Act), and after consultation with all interested parties, to direct a refinery capable of refining the licensee's production to do so on terms that may be agreed or determined by arbitration. Thus the New Zealand legislation, while not as yet concerned with limiting overproduction, has forestalled some of the problems associated with excessive supply of petroleum by promulgating common carrier and common processor provisions. Common purchaser provisions, i.e., statutory orders to rateably purchase production are relevant to an excess production problem and may be considered if and when the need for prorationing regulation is required in New Zealand.





Finally, comment must be directed to the disclosure of information provisions of the New Zealand legislation. The provisions seem adequate and serve not only to keep the Mines Department informed of a licensee's operations and progress, but also to add to the increasing knowledge of New Zealand's complex geology.<sup>179</sup> A licensee has to keep well logs and geological records, send monthly reports of well-workings to the Under-Secretary, furnish annual records of operations to the Under-Secretary, and, as soon as is reasonably practical, forward to the Minister certified copies of all geological, geophysical or other reports made or obtained by the licensee. The present general provisions are probably sufficient but they do lack the detail of modern disclosure provisions and could, it is submitted, be replaced by more specific and less repetitive stipulations.

As is usual in an industry where industrial secrecy is important, section 31(4) provides the information supplied by a licensee shall remain confidential during the term of the license. This provision raises a problem of some concern. It is submitted that there should be less restricted access to information about New Zealand's geology. The oil company should be entitled to ruminate over its findings on its license areas. However the information should not



remain secret when another oil company might be prepared to further explore the license area and the mere retention of the prospecting license prohibits access to the geological data. It is suggested that a set period (e.g. eighteen months) would be sufficient to allow the exploring company time to decide if their geological information was worth acting upon, after which the data should be open to the public.

A few concluding remarks. The tone of New Zealand's conservation legislation is, for the large part, stated in a permissive rather than a directive tone. An Inspector can issue instructions under regulation section 25 (2) but it may be questioned if the Inspector's powers are wide enough. The provisions are rather general and create an aura of uncertainty. While it may sound familiar, there is a need for overhauling the general conservation legislation and stating more detailed drilling and production

regulations.<sup>177</sup> It may seem that the exercise is rather esoteric in view of the fact that New Zealand's petroleum production is still very small. But it is preferable that the hypothetical problem be solved before reality causes hasty and possibly bad legislation. In light of overseas experience, it would seem desirable to set up a petroleum authority within the Mines Department to control the special problems



of the petroleum industry and its regulatory legislation. Such an authority could be given stronger powers to curtail waste,<sup>178</sup> but in turn, there should be administrative machinery provided to give licensee's a fair hearing. Perhaps, in view of the importance of the subject matter, appeal could be given to the newly established administrative division of the Supreme Court of New Zealand. Finally, the most pressing need would seem to be for a definition of waste, perhaps similar to the Alberta provision, that both outlines the objectives of oil and gas conservation and indicates the interest of the Mines Department in "good oilfield practice".

### Offshore Operations

The current wave of interest of the petroleum industry in New Zealand's hydrocarbon prospects centres on the Shell-B.P.-Todd Oil Services Ltd. offshore discovery.<sup>178</sup> The New Zealand discovery is part of an increased worldwide exploratory program that has only seriously engaged the attention of the oil industry since 1958, but has seen a rapid increase in activity in the last few years. The geological factors that created this interest have been described by a prominent authority in this way:

... practically all of the world's offshore oil and gas accumulations will be found in young sediment,





that is, in sediments of Tertiary or Mesozoic-Tertiary age. These young sediments have a record of much greater yield than other sediments. About 90 percent of the world's proved reserves pertain to sediments of these young ages.

All of this oil comes from a geologic age span which represents only the last 40 percent of the oil-bearing period of geological history. In fact, about 30 percent of present world reserves are in sediments of only the last six percent of the earth's oil-bearing period.

More important from the standpoint of economics - and this affects the offshore particularly - the per acre yield of the Mesozoic-Tertiary average is much higher than those of the older sediments of the longer Paleozoic period.<sup>179</sup>

The geological considerations support the premise that prospects of finding gas and oil are better offshore. Also it has been argued that the offshore area is more attractive as the onshore areas have already been exploited to a larger extent. On land, some 26,000 barrels per square mile have been found to date while less than 16,000 barrels per square mile have been found in prospective marine areas. Probably twice as much oil per unit of area remains to be found in the shallow seas.<sup>180</sup> Because of the geological indications, offshore acreage has become increasingly popular with the oil companies as the economic and technical problems of marine exploration, production, and transport have been solved. Nearly two-thirds of the free world prospective acreage under 1,000 feet of



water (4.7 million square miles) is already under license.<sup>181</sup>

The New Zealand offshore activity may therefore be seen as part of an international offshore exploration phase, for at present only the easily accessible areas are being evaluated. Technical improvement will see further developments, although these developments will be retarded by the economic fact that Middle East crude oil supplies are low-cost. Capital investment will not therefore enter offshore activity until profit factors start to equalize, i.e. the cost factors of Middle East oil start to rise towards the present costs of producing offshore oil.<sup>182</sup>

The Petroleum Act 1937 was passed at a time when only a few minds had addressed themselves to the natural resource potential of the ocean areas. But since the Second World War the increasing world population has forced mankind to concentrate on the unsurveyed areas of the globe in search of raw materials and food resources. The increased attention led to legal minds addressing themselves to the law of the sea. At Geneva in 1958, a series of Conventions were approved clarifying international rights as to the exploration and exploitation of the natural resources under the Continental Shelf. Thus international approval was given to the concept of the continental shelf, a concept initially impressed in marine law by President Truman's



proclamation (September 28, 1945) entitled "Policy of the United States with Respect to the Natural Resources of the Subsoil and Seabed of the Continental Shelf." This proclamation asserted the United States' jurisdiction and control to the natural resources on and under the continental shelf contiguous to the United States.

In the early 1960's, the Shell consortium evinced interest in New Zealand's offshore areas. In order to control offshore petroleum activity the government, following the steps of the United Kingdom, passed the Continental Shelf Act 1964 which extended the provisions of the Petroleum Act to the seabed and subsoil of the continental shelf. The definition of continental shelf as defined at Geneva was adopted in the Continental Shelf Act. It reads:

"Continental Shelf" means the seabed and subsoil of those submarine areas adjacent to the coast of New Zealand, but beyond the territorial limits of New Zealand, the surface of which lies at a depth no greater than two hundred metres below the surface of the sea, or, where the natural resources thereof are capable of exploitation, at any greater depth.<sup>183</sup>

Amending legislation to the Petroleum Act soon became necessary and Petroleum Amendment Acts were passed in 1965 and 1967. Exploratory activity in New Zealand's offshore areas intensified towards the end of the decade.





Shell's interest focused on a geological continuum of the Eocene strata in which the Kapuni natural gas strike had been found in, and in 1969 New Zealand heralded it's first offshore petroleum field. At present New Zealand's hydrocarbon future may be said to lie in offshore rather than onshore potential.

As has been evidenced from the prolific legislation concerning offshore petroleum in recent years, offshore exploration and exploitation of petroleum necessitates the consideration of new factors not found in onshore activity. Essentially, the problem is the seawater, which creates a host of technical problems which increase with the depth of seawater over the submarine surface. New techniques have evolved for exploration and production. Conservation and pollution issues have become topics of international concern. Consequently the costs for offshore operators have been many times more than for onshore operators. (A general figure of five to eight seems a good multiplier of offshore costs compared to onshore costs.) The costs do not increase at the initial reconnaissance stages when geological and geophysical investigation costs may be actually less than on land.<sup>184</sup> But once drilling and appraisal operations begin, the costs are the highest in the industry, due to the technical problems posed by the sea.<sup>185</sup>



The New Zealand legislation dealing with offshore petroleum activity is sparse and rather primitive. The 1937 statute is not suitable for petroleum activity conducted on New Zealand's continental shelf in the 1970's. However, the recent amendments to the Petroleum Act have shown some legislative cognisance of the different factors that surround offshore operations. A prospecting license granted in respect of the continental shelf may cover an area greater than two hundred square miles; recognition is thus given to the need for large exploration areas in offshore operations. The Minister has somewhat greater powers over offshore operations (as compared to onshore activity) in that he may include in the license conditions to:

- (a) Expend a specified sum within a specified period on prospecting operations; and
- (b) Commence and carry on geological and geophysical investigations within such time as may be specified in the license, and according to a work program submitted by the applicant to the Minister and approved by him before the license is granted; and
- (c) Commence and carry on drilling operations as soon as practicable after the aforesaid geophysical investigations have been completed; and
- (d) Undertake to surrender his license unless the conditions included therein under this proviso are complied with.<sup>186</sup>



The provisions concerning expenditure and the approval of a work program are new to the Act and follow foreign guidelines. The deposit amount was raised, perhaps in recognition of the greater potential damage that offshore petroleum activity can cause, perhaps to ensure operators had the necessary finance, and perhaps to provide public revenues in the event of an operator's failure to comply with the expenditure provision or other conditions of the continental shelf licenses. The 1965 Amendment also removed the work credit provisions<sup>187</sup> from the ambit of the offshore prospecting license. However, the stiffening of the Act's provisions was ameliorated by another Amendment Act in 1967 which allowed prospecting operations under a prospecting license to be credited to another prospecting license held by the same licensee.<sup>188</sup> Also provision was made for the Minister to suspend, vary, or modify license terms at his discretion.<sup>189</sup> The matter of offshore legislation is apparently under government scrutiny.<sup>190</sup> The offshore provisions therefore are of a temporary nature; the elementary legislative appreciation of the differences between onshore and offshore petroleum operations is to be noted and welcomed.

The foreign legislation shows varying approaches to the problem of regulating offshore exploration and





exploitation, the variables being the maturity of the industry, the political climate, and the attributes of the particular continental shelf. Nigeria, the United Kingdom, and Western Australia have almost identical legislation for both offshore and onshore operations, and a common factor to all three is the comparative success of petroleum exploration in their offshore areas viz-a-viz their onshore operations. In Canada the success of onshore activity has meant little interest has been shown in marine exploration until very recently. Consequently Canadian onshore statutes have been modified to meet the special requirements of offshore development.<sup>191</sup> Australia has recently enacted the Petroleum (Submerged Lands) Act 1967 on the basis of what has been described as a unique and extraordinary constitutional document,<sup>192</sup> an agreement by the Commonwealth government and the state governments to enact similar legislation to regulate offshore petroleum development. This legislation was passed just in time to effectively control the fast growing play off Australia's shores. An additional source has been recruited, namely, the United States federal legislation on the Outer Continental Shelf Lands<sup>193</sup> to obtain guidance from drilling and producing regulations controlling a more intensive and mature offshore oil and gas industry.



It is proposed to follow the pattern of the foreign legislation and consider firstly the exploration phase including drilling and, secondly, the exploitation phase. It may be said that the foreign legislation grants generous exploration rights and closely regulates production leases.

At the exploration stage the rights granted are similar; for instance, an English operator obtains:

The right to search for petroleum ... (which) include(s) prospecting and carrying out geological surveys by physical or chemical means and drilling for the purpose of obtaining geological information about strata in the exploration area but shall not include any right to get petroleum or any right to drill wells for production of petroleum or any other well of a depth exceeding three hundred and fifty meters below the surface of the sea bed or such greater depth as the Minister may from time to time approve...<sup>194</sup>

An American operator is slightly less restricted although an environmental provision is included:

... any person authorized by the Secretary (of the Interior) may conduct geological and geophysical exploration in the Outer Continental Shelf, who does not interfere with or endanger actual operations under any lease maintained or granted pursuant to this Act, and which are not unduly harmful to aquatic life in such area.<sup>195</sup>

Nigeria<sup>196</sup> and Canada<sup>197</sup> divide the initial phase in two, granting a non-exclusive reconnaissance license which can be followed by an exclusive license or permit for more detailed exploration work including drilling and seismic



work.<sup>198</sup> An operator in Australian waters is simply given a right to explore and to carry on such operations and execute such works as are necessary in the permit area.<sup>199</sup>

The offshore area granted for exploratory purposes is large; for instance, the controlling authority in Nigeria can grant a non-exclusive license over five thousand square miles and an exclusive license over one thousand square miles.<sup>200</sup> A maximum exclusive permit area under the Australian Act (400 blocks) covers about ten thousand square miles although area reduction measures reduce the area by half after six years and every five years thereafter.<sup>201</sup> Canada does not grant such large areas in single permits.<sup>202</sup> The United Kingdom and United States do not have area restrictions other than in operational production leases.

The duration provisions indicate that governments expect prompt starts to be made on offshore exploration. The Australian and Canadian initial terms are of six years with provision for renewal<sup>203</sup> while Nigeria licenses exploration on a yearly basis and prospecting for periods up to five years.<sup>204</sup> The English operator's license lasts three years.<sup>205</sup>

At the same time the large tenement areas are held at low cost during the exploration phase, e.g. Australia rents at 20 cents per square mile; Nigeria is the most





expensive at £1 per square mile. Canadian operators are able to credit work expenditures against their permit fees in the exploration stage or rentals at the lease stage.<sup>205</sup> American and English operators do not face any rental charges.

The basic obligations of the exploration phase for offshore activity are not closely defined although Nigeria requires geological and geophysical activity to begin three months after the grant of an exploration license.<sup>207</sup> The work obligations or their absence reflect the differing prospects of the five areas, for there is no incentive needed to encourage the English and American offshore plays, as the prospects have already been proved. Some impositions and incentives are shown in the Australian, Nigeria, and Canadian measures, and these reflect the less certain prospects so far discovered in their marine sediments. It may be said that in Nigeria and Australia, this view is rapidly altering and the Canadian areas would also seem to be showing signs of reducing incentives.

Operators generally obtain their permits at the controlling authorities' discretion and this discretion, combined with the costs of offshore operations, effectively prevents under-financed operators entering marine petroleum activity.



The exploration phase therefore is characterised by large, low-cost tenements. The legislation encourages prompt reconnaissance operations by short license periods or area reduction measures. Accessible continental shelves are not to be left lying fallow. The legislation also shows the changes that may occur as an area becomes heavily leased, i.e. that the exploratory phase requirements are left largely in the hands of the operators and legislative attention is focused on the production stage.

At the production stage, the right granted takes various forms but in essence allows the operator to produce and transport petroleum found. As is usual, the operator's tenement area is reduced on the transition to the exploitation phase, but offshore lease areas show a tendency to be larger than onshore leases, a measure probably based on conservation principles. The United States legislation, of course, provides an exception.<sup>208</sup> Nigeria has provision for a production lease up to five hundred square miles<sup>209</sup> and while this may seem excessive, it may be noted that Australia's Offshore Code allows a location to cover one hundred and fifty to two hundred and twenty-five square miles (depending on whether the option to retain relinquished acreage by paying additional royalty is exercised)<sup>210</sup> and no theoretical limit appears to be placed on the English



production area.<sup>211</sup>

Production terms should give security to a petroleum producer and the legislation studied does provide for stable production periods: twenty-one years with provision for renewal (Australia),<sup>212</sup> six years with an option for a further forty years (United Kingdom),<sup>213</sup> twenty years and renewal for the same (Nigeria),<sup>214</sup> five years and so long thereafter as oil and gas may be produced from the area in paying quantities (United States),<sup>215</sup> and twenty-one years then renewable by production (Canada).<sup>216</sup>

This security is upset in some cases. Nigeria, for instance, provides for relinquishment of half the lease area after ten years.<sup>217</sup> The more usual provision is for acreage to be given up at the time of discovery or shortly thereafter.

Fiscal provisions are rather similar, although less attractive areas such as Artic Canada have less burdensome requirement measures than those found in more accessible areas. Fees are usually light and may cover administrative costs. Bonds or securities may be more substantial and may weed out operators with inadequate capital. Rentals generally increase at the production phase, but the principal revenues are bound up in royalty and bonus measures. (These are further discussed in the next section).





The United States practice of auctioning all leasehold areas shows how competitive open market forces safeguard the public's interest in their natural resources and, also, provide large sums of public revenue.<sup>218</sup>

Conservation practice for offshore activity has become a cynosure of attention around the globe. The Santa Barbara and Louisiana blowouts, and more recently, the Shell fire in the Gulf of Mexico, have shown that even in the areas of advanced petroleum technology, underwater drilling and production techniques are far from perfect. An operator's failure to use the best possible methods has wrecked harsh results, for escape of oil at sea is presenting almost insoluble pollution problems. Associated with these production problems are the pollution problems of transporting the reservoir product to refineries. Pipeline and shipping disasters are already household words and require no further elaboration.

Conservation thus assumes a double aspect in marine operations, for not only does the operator have to prevent physical waste but he must also protect or conserve the environment he is working in. Thus, stringent drilling and production regulations are the first preventive legislative steps that can be taken to ensure that production methods used are the best available. The Australian position



has been recently described thus:

... governments intend to promulgate detailed operating and safety regulations and considerable work has already been done. The art and technology of offshore exploration and exploitation is still comparatively new and developing with astonishing rapidity. Many of the companies have had considerable experience in offshore petroleum activities in other countries if not already in Australia. In view of this, government wished to give industry the opportunity to discuss the proposed regulations in detail and considerable progress has been made in these discussions. As a result it is hoped that it will be possible to promulgate a comprehensive operating and safety code which will ensure that petroleum operations on Australia's continental shelf are undertaken in the safest possible way and with proper precautions against disturbance to the ecological balance of the area or other damage to the marine environment. In the meantime, provision is made for the Designated Authority to give directions to title holders on any matters on which regulations may be made.<sup>219</sup>

A similar co-operative effort by government and industry should enable suitable regulations to be passed for New Zealand offshore activity. However, even if such regulations are formulated, they must be carefully supervised and kept pertinent to improved technology and the increased knowledge of New Zealand's offshore areas. The Santa Barbara type blowout (reservoir pressure forcing its way from the bore through sea bed fissures) and the Louisiana fires and spillage (caused by the operator's failure to use downhole tubing safety valves - he was obtaining greater production without the safety devices!) may or may not be



preventable. But, firstly, the guidelines must be set for the industry and if necessary, new controls imposed if spillage does occur. Even complete shut-down may be justified. For example, the United States and Canada have closed down production in particularly sensitive areas pending new and more stringent controls.<sup>220</sup> The new proposals include extremely detailed obligations concerning drilling and development programs,<sup>221</sup> control of wells<sup>222</sup> (personnel, engineering standards, well casing and cementing, drilling mud, blowout prevention equipment, well completion), waste disposal and pollution.<sup>223</sup> Respecting the last of these, industry has responded sharply. The suggested legislation would impose strict liability on a lessee who pollutes sea waters by drilling and production operations.

It is submitted that offshore legislation for New Zealand should be enacted as soon as practicable, ideally as a separate part of a comprehensive petroleum code. Note should, however, be taken of the fact that Nigeria and Western Australia have seen fit to pass identical legislation controlling both onshore and offshore operations. New Zealand is not afflicted by the jurisdictional problems of the federal nations<sup>224</sup> nor by neighboring countries sharing her continental shelf.<sup>225</sup> A preliminary problem







could be that of delineating between onshore and offshore licenses.<sup>226</sup> The present New Zealand onshore licenses extend over territorial waters (three statute nautical miles) and it would seem preferable to set the demarcation point at the low tide level, the historical transition place. The present haphazard location and definition of licenses could be replaced by a geodactic grid pattern as is found in the Canadian and Australian legislation. Such a pattern should extend over both onshore and offshore areas, and enable the controlling authority to locate licenses precisely.

New legislation has to show awareness of the current interest in New Zealand's offshore sedimentary areas, the higher operating costs of offshore petroleum operations (not forgetting the distances to and from New Zealand),<sup>227</sup> the difficulties inherent in limited supplies of technical equipment and "knowhow", the public interest in rapid development of petroleum resources, improvements in marine technology, and the environmental issues of conservation and pollution. Guidance will be obtained from the forthcoming Australian regulations. Nigerian and Canadian legislation may also provide help while technical detail can be found in the American statutes. Features such as approval for drilling programs, regular reports (including seismic



records and well logs) to the controlling authority, access for inspection, equipment maintenance, specified good oil-field practices, immediate notice of spillage or leakage, provision for removal of equipment at cessation of licenses, and careful abandonment stipulations should be considered essential. Provisions as to terms, areas, revenues, and liability are policy issues and therefore open to argument and debate. The government should, it is submitted, take firm steps to ensure first rate methods are used in future offshore activity and thereby state the industry's parameters, in contrast to the permissive approach so far evidenced.



## FOOTNOTES

### CHAPTER III

- 1 James E. Beaver, Book Review, (1968) 14 McGill Law Journal, 757 at 776-777. "There are various other motives that may inspire scholastic publication...".
- 2 Changing the Law, (1969) 3 N.Z.U.L.J. 404, 408.
- 3 Also it should be noted that New Zealand's Mining Act is being substantially altered in 1970.
- 4 For instance, Northcutt Ely in a study of the laws of over 100 jurisdictions in the decade 1948-1958 found that more than fifty showed important change ("Mineral Title and Tenure" being Ch. III of Economics of the Mineral Industries, 1959). The legislative pace has probably quickened: J.H. Barrows, International Petroleum Industry, 1965, p. 32. "The post-World War II period has seen many changes in legal provisions ... particularly during the period since 1957."
- 5 Second E.C.A.F.E. Symposium, 1962, Vol. II, p. 287. The quotation smacks of a confiscatory tone. The legislation is needed before the explorers acquire vested rights, not after.
- 6 E.g., the Companies Act and the Land and Income Tax Act doubtless require scrutiny by a petroleum explorer.
- 7 Petroleum Amendment Act, 1962, No. 127.
- 8 Continental Shelf Act, 1964, No. 28: Petroleum Amendment Acts 1965, No. 14 and 1967, No. 132.
- 9 Supra, pp. 17-35.
- 10 It may also be noted that hard mining legislation is now adopting principles evolved for petroleum legislation. The present Mining Bill in the New Zealand Parliament embodies some factors discussed in a series of post-graduate law lectures given at Melbourne University in January 1969. See P.H.N. Opas, "Mining Law in Australia: Its Development and Future" re tenement areas, duration, and collateral obligations.





- 11 Ely, supra n. 4, p. 111.
- 12 Barrow, supra n. 4, p. 32.
- 13 Oil and Gas Production and Taxes, Canadian Tax Papers, 1963, p. 1.
- 14 Id. Ignorance of petroleum reservoir energy principles led to a gross waste in the early years of American petroleum production. Eventually state conservation boards arose to control petroleum exploration and production and the birth of the Inter-state Oil Compact Commission in 1934 saw the start of an important unifying influence. Alberta's Conservation Board was set up in 1938 (S.A. 1938, c. 15) and under the Act:
  - (a) effects the conservation of oil and gas resources of the province;
  - (b) prevents the waste of the oil and gas resources of the province.
- 15 Id.
- 16 Barrow, supra n. 4, p. 32.
- 17 H. Cattán, Evolution of Oil Concessions, (1967), p. 3.
- 18 Economics of Petroleum Exploration, "Petroleum Exploration in Foreign Countries", p. 114.
- 19 Lufti, OPEC Oil, 1968, p. 10.
- 20 In South America, Middle East, Europe, Asia, Australia, and Africa.
- 21 Ely, supra n. 4, 110-125; Economics of Petroleum Exploration, supra n. 18, 104-106; First ECAFE Symposium 1958, 240-245; Cattán, supra n. 17, 81-82.
- 22 First ECAFE Symposium 1958, pp. 241-245.
- 23 A.R. Thompson, Australian Petroleum Legislation and The Canadian Experience, (1968) 6 Melbourne U.L.R., 370, 393.

The Alberta Conservation Board stated peak production



for 1969 occurred in December at 907,000 b/d: Oil Week, Vol. 21, No. 18, June 22, 1970, p. 24.

24 In 1969, Alberta produced 764,900 b/d of the Canadian total daily production of 1,098,200 of conventional crude oil. Oilweek, July 20, 1970 p. 45.

25 J.B.R. Livermore, Petroleum Legislation in Australia with particular reference to the offshore Areas, p. 1, a paper presented to the Fourth E.C.A.F.E. Symposium on The Development of Petroleum Resources of Asia and the Far East, Canberra, Australia, November, 1969:

The early legislation was essentially designed to cater for hard rock mining, in particular gold and, to a lesser extent, the base metals. It was in relatively recent years that State and Territory legislation was passed dealing specifically with petroleum.

26 Petroleum Act (N.Z.), 1937, s. 5(1).

27 Id., s. 4.

28 Id., s. 2.

29 Ibid.

30 Helium is an extremely valuable inert gas having many technical, industrial, and scientific uses.

31 The Outer Continental Shelf Act, 67 U.S. Stat., (1953), s. 8(c), (d).

32 Id., s. 12(f).

33 The Petroleum Acts 1923-1967 (Qld) s.3, Petroleum Act, 1958 (Vic.) s. 3. The United Kingdom and Nigerian petroleum Acts' definitions are similar, quare the meaning of "... relative hydrocarbon or natural gas."

34 Australia, Petroleum (Submerged Lands) Act, 1967, s. 5.

35 R.S.S., 1965, c. 50.

36 O.C., 1960/64.



- 37 O.C., 1756/64. Saskatchewan is the principal helium producing province in Canada. In 1969 New Zealand imported 138,950 long tons of sulphur from Canada for \$5,347,000 (\$38.48 per ton).
- 38 Alberta Regulation 342/62. (O.C. 891/62).
- 39 S.A. 1962, c. 49.
- 40 Eighth Commonwealth Mining and Metallurgical Congress, Vol. V, p. 277, Oil from Oil Shales and Tar Sands, W. T. McFadyen. Vol. IV, G. J. Williams, Various Bedded Deposits: Oil Shales, 252-255. The only oil shales worked in New Zealand were at Orepuki in the South Island in 1902. An expenditure of £120,000 on the plant went for naught as the operations closed down within a year. At present the New Zealand oil shales are not an economic proposition.
- 41 A. R. Thompson, Australian Petroleum Legislation and The Canadian Experience, (1968) 6 Melbourne U.L.R., 370 at 389.
- 42 Alberta: Geophysical Regulations (O.C. 148/59), Mobile Equipment Licensing Act (S.A. 1959, C. 53). British Columbia: Geophysical Regulations (B.C. Reg. 57/66). Saskatchewan: Geophysical Exploration (O.C. 933/64).
- 43 Exploration areas vary, e.g., South Australia, Northern Territory and the Territory of Papua and New Guinea: 10,000 square miles; Victoria and New South Wales: 5,000 square miles; Western Australia, Queensland and Tasmania: area set at Minister's discretion. The production titles can be up to 2,500 square miles in Papua and New Guinea, 1,000 square miles in Northern Territory, 100 square miles in Western Australia, South Australia, Victoria and Queensland, and 25 square miles in New South Wales. It is to be noted that the Australian legislation is moving towards a two stage system.
- 44 Petroleum Act (N.Z.) 1937, ss. 4, 5, 23, 24.
- 45 Fourteen licenses covered 70,550 square miles of the Continental Shelf: Mines Statement, December 31, 1968.





- 46 New Zealand's land area is 103,736 square miles and the Continental Shelf area comprises some 85,000 square miles. The sedimentary basin area covers some 75 per cent of the New Zealand surface area. Concession areas covered 50,259 square miles on land and 125,432 square miles offshore at the end of 1969: H. R. Katz, Petroleum Developments in Southwest Pacific Region during 1969, draft of Development Paper for A.A.P.G. Bulletin. The major sedimentary basins of Australia and Papua - New Guinea cover about 1.7 million square miles, while there are some 600,000 square miles of prospective offshore areas.
- 46a E.N. Avery, The Odds in Oil Exploration, Third ECAFE Symposium on the Development of Petroleum Resources of Asia and the Far East, Tokyo, 1965.
- 47 Present regulations (s.18 of Petroleum Regulations ((S.R. 1939/30)) ) as amended provide that any person drilling a boxhole below 1,000 feet requires a service permit and must give evidence of practical experience in drilling operations.
- 48 Petroleum Act 1937, s. 5(1)
- 49 Petroleum Regulations 1939, (S.R. 1968/83), s. 4.
- 50 Supra, n. 48, s. 5(2).
- 51 Petroleum Amendment Act 1965, s. 2.
- 52 Supra, n. 48, s. 5(3).
- 53 Id., s. 5A(2).
- 54 For instance an exploration license in the United Kingdom lasts three years; in Nigeria an oil exploration license terminates after a year although it may be renewed for another year, and an oil prospecting license cannot exceed five years; Queensland's prospecting permit is two years, renewable for two additional years; Western Australian permits last five years and are renewable for five more years; Victoria's permits run for four years; the North West Territories permits vary according to location but can exist from three to eight years with possible renewals annually for six years after the basic term whereas Alberta confines



her reservations to four month terms, renewable to a 36 month maximum. Drilling may further extend the reservations life another 18 months on payment of stipulated fees.

- 55 Supra, n. 48, s. 8 (1) .
- 56 Id.
- 57 Id., s. 8(2) .
- 58 Id., s. 8(3) .
- 59 Statutes Amendment Act 1941, s. 61.
- 60 Id., s. 62.
- 61 Supra n. 48, s. 8A.
- 62 Nigeria, Petroleum (Drilling and Production) Regulations 1969: three months to commence examination of the relevant area by geological and geophysical methods under an oil exploration license, s. 12(1). Commence seismic investigation within six months of the grant of an oil prospecting license or oil mining lease (s. 30(b)), and begin drilling operations within eighteen months and drill one well each year: s. 31 . In the United Kingdom a licensee agrees to carry out with due diligence a scheme of prospecting and development as is set out in his license and presumably is mutually acceptable to the Minister of Power and the licensee: Petroleum (Production) Regulations 1966, (U.K.), sch. 3, s. 12. An explorer in Queensland is given four months to commence geophysical and geological exploration, and one year to commence drilling with a substantial and adequate drilling outfit, and two years to drill a well at least 2,000 feet deep: ss. 22, 22A, of The Petroleum Acts 1923 to 1958, (Qld.).
- 63 Canada Oil and Gas Land Regulations (SOR/61-263) s. 41.
- 64 Petroleum and Natural Gas Act 1965 (B.C.), s. 46.
- 65 Supra n. 63, ss. 81(a), 82, 83. Supra n. 64, ss. 56-75.
- 66 Petroleum and Natural Gas Reservation Regulations 1962



- O.C. 607/63) Alta. Reg. 251/62, s. 15.
- 67 Petroleum and Natural Gas Permit Regulations, Alta. Reg. 250/62, s. 17.
- 68 Supra n. 48, s. 8A.
- 69 Petroleum Amendment Act 1965, s. 2 (1) (a).
- 70 Petroleum (Submerged Lands) Act 1967, (W.A.), ss. 33, 57 (the latter section stipulating an expenditure of \$100,000 per annum per graticular block at the production stage); Petroleum Act 1967, (W.A.), ss. 43, 67.
- 71 Mr. Sommerville, Mines and Minerals Dept., Edmonton.
- 72 Dr. A.R. Thompson, of the Faculty of Law, University of British Columbia, and Co-Editor of Canadian Oil and Gas, 1962.
- 73 National Development Conference, Minerals Committee, Report to Second Plenary Session - May 1969, p. 19. The writer has seen similar opinions aired in private correspondence with resident New Zealanders, and there are comparable statements to be found in the Eighth Mining and Metallurgical Congress.
- 74 At pp 71-75 and p. 140 - see Policy Issues: Fiscal Provisions.
- 75 Supra, n. 48, ss. 9 - 11.
- 76 These general comments on the exploitation lease are based on the texts of: Ely, Cattani, Olisa (to whom reference may be made to the bibliography), the ECAFE Symposia, and The Search for and Exploration of Crude Oil and Natural Gas in the European area of the O.E.C.D., an O.E.C.D. Publication, 1962.
- 77 Infra, Blurring of Tenements, p. 66.
- 78 Thompson, Australian Petroleum Legislation and the Canadian Experience, (1968) 6 Melbourne, U.L.R., 370, at p. 389.
- 79 Mines and Minerals Act 1962, S.A. c. 49, ss. 125, 126.





- 80 Nigeria, Petroleum (Drilling and Production) Regulations, 1969; North West Territories, Canada Oil and Gas Drilling and Production Regulations (SOR/61-253); Queensland, Petroleum Regulations (Land) 1966.
- 81 Oil and Gas Conservation Act 1969, S.A., c. 83 and Regulations (Alta. Reg. 183/69).
- 82 Infra, at p. 82.
- 83 Infra, pp. 112-118.
- 84 Supra n. 48, S. 9 (1).
- 85 Id., s. 9 (3). Substantial compliance is further defined in s. 38.
- 86 Id., s. 9 (6).
- 87 Id., s. 9 (7).
- 88 Olisa, Oil and Gas Rights in Africa, (1967) p. 88; Cattán, Evolution of Oil Concessions, (1967), p. 85.
- 89 Petroleum (Production) Regulations 1966 (U.K.) for Landward and Seaward production licenses. A Methane Drainage License is granted for 25 years.
- 90 Nigeria, Petroleum Decree 1969, sch. I, s. 10.
- 91 Supra, n. 79, s. 125.
- 92 Supra, n. 90, s. 13.
- 93 Supra, n. 79, s. 126.
- 94 Petroleum Act 1958, (Qld), s. 31; Petroleum Act 1967 (U.K.) s. 63; Petroleum Act 1958, (Vic.) s. 27: fifteen years and right to renewal.
- 95 Canada, Oil and Gas Regulations (SOR/61-253), ss. 62, 63.
- 96 Infra, pp. 77-78.
- 97 Infra, pp. 67-68.



- 98 Supra n. 48, S. 10 (1) proviso that if \$10,000 has already been deposited, other security may be given.
- 99 Id., s. 11.
- 100 Id., s. 12.
- 101 Id., s. 9 (2)
- 102 The Shell consortium have been very cautious in their public statements as to the potential of the new off-shore field. Management must necessarily concern itself with maximization of profits. New Zealand's lack of population does not usually permit factors of scale to enter the costing of production.
- 103 Correspondence with the Mines Department, 1969.
- 104 The Mines Department Statements for 1967 and 1968 stated there were 295 onshore and 12 offshore licenses and 302 onshore and 14 offshore prospecting licenses extant for the respective years. Yet only 9 wells were drilled over the two year period. As noted supra, there have been claims that insufficient work was being undertaken on current licenses.
- 105 The Minerals Committee of the National Development Conference stated that geologists and officials from many major companies visited New Zealand in 1968. Many moved on after finding that they were unable to take up suitable land for prospecting because all suitable areas were already taken up. The Committee noted a substantial increase in prospecting for minerals but concluded that even greater activity is both possible and desirable.
- 106 Thompson, Australia's Offshore Petroleum Common Code, (1968) 3 U.B.C.L.R., No. 2, 1, 20.
- 107 Id., at p. 11. The industry was at the time arguing against the "double-relinquishment" provisions in the new Australian Offshore Code, i.e. reductions in acreage both during exploration, and on discovery.
- 108 Supra, n. 13.
- 109 Ibid.



- 110 Supra, n. 105.
- 111 For instance in Alberta the sale of Crown reserves has provided a big boost for public coffers, e.g. 1966-67, \$106,225,023.
- 112 The Canadian provinces and the Offshore Australian areas are mapped on a graticular grid system. The New Zealand Act allows an operator to carve out any shape of license area.
- 113 Cp. Australia's 2,970,000 square miles and Canada's 3,850,000 square miles of sedimentary basin.
- 114 The famous East Texas field is the largest in the U.S. and covers some 200 square miles, while the huge Pembina field in Alberta spreads over some 800 square miles.
- 115 The Parliamentary debates on the 1955 Petroleum Amendment Bill makes it apparent that the new legislation was introduced to encourage B.P. and Shell to join Todd Bros. in a serious exploration effort.
- 116 This would appear to be a result from following the English legislation which has provision for royalty payments in both prospecting and mining licenses.
- 117 Petroleum Act 1958 (Vic.), s. 18.
- 118 Petroleum Acts 1923-58 (Qld), s. 2.
- 119 Olisa, Oil and Gas Rights in Africa, 1967, p. 131-132: An uncommon obligation that may be imposed in some countries (Senegal, Tunisia) is that a holder who discovers petroleum deposits and considers their exploitation unprofitable, may be placed under the obligation to exploit them if the authorities consider the step necessary in the interest of national consumption needs. If this step is taken, the government assumes a financial obligation, the effect of which is to assure a return of investment with specified per cent profit thereon (ten and five per cent respectively in Tunisia and Senegal).
- 120 ECAFE 1st Symposium, p. 243.





- 126 Dr. Thompson has commented on the lack of experienced Australian personnel: Supra, n. 106, p. 15, and has expressed a similar view as to personnel in the New Zealand Mines Department.
- 122 Id.
- 123 British Columbia, Royal Commission on Gasoline Price Structure in British Columbia. Imperial Oil Ltd. Presentation, 1964-65.
- 124 Alberta, Report by the Gasoline Marketing Committee, December 1968. The Committee, chaired by K.A. McKenzie Q.C., sharply criticized the major firms control over their outlets and the report prompted a bitter reply from the major companies. The Report, to the dismay of some pump operators, appears to have been shelved by the provincial government.
- 125 Thompson, supra n. 106, pp 14-15.
- 126 Thompson, Sovereignty and Natural Resources (1967) 1 Valparaiso L.R. 284, 290. The article deals with the situation of the Crown as lessor, then considers the royalty clause (which represents the principal item of public interest in oil development) in Federal then Provincial legislation, especially Alberta. Renewal and compliance with laws provisions are also studied.
- 127 The Premier of Alberta has given a verbal commitment that royalty rates will be revised at periods of not less than ten years.
- 128 Report of Alberta Oil and Gas Revision Committee, 1962.
- 129 Supra, n. 126, pp 318-19.
- 130 Mughraby, Permanent Sovereignty over Oil Resources, 1966, xvi.
- 131 This was a result of the autocratic nature of the Middle East Sheikdoms and the lack, in Moslem law, of an equivalent to western commercial law to deal with the advent of the oil company in the post World War I era.



- 132 Generally see Mughraby, supra n. 130; also Lufti, OPEC Oil, 1968; Cattani, Evolution of Oil Concessions. The Organization of Petroleum Exporting Countries (OPEC) has suggested that contracts concerning hydrocarbon resources development be limited to 20 years, that guarantees of fiscal stability be given up to a maximum of ten years, and that an operator have no right to obtain excessively high net earnings after taxes: Declaratory Statement of Petroleum Policy, Baghdad, 1968.
- 133 See ante p. 67 et seq.
- 134 Dr. Thompson, as witness to the Canadian House of Commons Standing Committee on Indian Affairs and Northern Development, Dec. 6, 1968, p. 227.
- 135 Mines and Minerals Act, 1962, S.A., c. 49, ss. 125, 126.
- 136 See Lewis and Thompson, Canadian Oil and Gas, Vol. 3, App. II. For instance British Columbia's scale ranges from 5% to 16 2/3%.
- 137 The XVI Conference of OPEC passed Resolution No. 9- in June, 1968, embodying a declaratory statement of petroleum policy. The first principle (mode of development) stated in Paragraph 3:
- In any event, such contracts (for petroleum development by foreign sources) shall contain a clause by which its various terms and conditions would be open to revision at predetermined intervals, as justified by changing circumstances.
- 138 The Organization of Oil Exporting Countries comprises Indonesia, Iran, Iraq, Kuwait, Libya, Qatar, Saudi Arabia, and Venezuela.
- 139 Lufti, Opec Oil, 1968, p. 10.
- 140 Petroleum (Production) Regulations 1966, (U.K.), Sch. 6.
- 141 Thompson, supra n. 78, at 377.



- 142 For those interested readers the following references may give some background to a study of conservation: Ise, The United States Oil Policy, Yale U. Press (1926); American Bar Association, Section of Mineral Law, Conservation of Oil and Gas, a Legal History (1938); American Bar Association, Section of Mineral Law, Murphy (ed.), Conservation of Oil and Gas, A Legal History, 1948 (1949); American Bar Association Section of Mineral Law, Sullivan (ed.), Conservation of Oil and Gas, a Legal History, 1948 - 58, (1960); Interstate Oil Compact Commission. The Compacts Formative Years (1955); Rostow, A National Policy for the Oil Industry, Yale U. Press, (1948); Zimmerman, Conservation in the Production of Petroleum, Yale U. Press, (1957); Lovejoy and Homan, Economic Aspects of Oil Conservation Regulation, John Hopkins Press (1967). There are many articles on the subject. Reference may be made to the Petroleum Law Supplement of (1969) 7 Alberta Law Review, and an article by Marcia Neave, The Conservation of Oil and Gas (1969) 7 Melbourne U.L.R., 201, which considers the differences between American and Australian onshore conservation legislation. Many of the observations made by her are applicable to New Zealand's petroleum legislation.
- 143 See App. I for a short description of the mechanics of an oil and gas reservoir.
- 144 Will, Conservation Acts and Practices, (1958) 4 Rocky Mt. M.L. Inst., 545, at p. 546.
- 145 Oil and Gas Conservation Regulations, (Alta. Reg. 183/69), s. 300.
- 146 For a discussion of a prorationing scheme see Vavra, An Appraisal of Alberta's New Prorationing Scheme, (1969) 7 Alta. L.R. 379.
- 147 Zimmerman, supra n. 142, pp. 273 - 279.
- 148 Oil and Gas Conservation Act 1969, S.A., c. 83, ss. 49 - 55.
- 149 The Oil and Gas Conservation Board has a main office in Calgary, plus five area offices. Of the staff of 270, about 60 are professional personnel. Its budget is about \$2.75 million, financed on a 50 - 50 basis by







government and industry: Govier, Administration of the Oil and Gas Conservation Act in Alberta, (1969) 7 Alta. L.R. 341, at p. 342.

- 150 Supra, n. 48, s. 32.
- 151 Id., s. 31.
- 152 Id., s. 9 (2).
- 153 The Petroleum Regulations 1939, S.R. 1968/83.
- 154 Id., s. 18.
- 155 Id., ss. 37 - 60.
- 156 Neave, supra n. 142, 213.
- 157 Supra n. 153, s. 4 (5).
- 158 Supra n. 48, s. 37.
- 159 Supra n. 107, s. 21.
- 160 Supra n. 48, s. 33.
- 161 See supra, n. 107, s. 25 (2) and The Petroleum Acts 1923 - 1967 (Qld), s. 53; Petroleum Regulations (Land) 1966 (Qld), s. 10 (2); Petroleum Act 1958 (Vic) s. 51 (1) (b); Petroleum Act 1967 (W.A.) s. 119.
- 162 Supra n. 48, s. 33 (5), (6).
- 163 Supra n. 161.
- 164 Supra n. 48, s. 32 (1). The Minister is to be satisfied that two or more licenses cover a single oilfield, and that it is in the national interest to secure maximum ultimate recovery and avoid unnecessary competitive drilling.
- 165 Id., s. 32 (3).
- 166 Id., s. 32 (4).
- 167 Id., s. 14.



- 168 Id., s. 27 which permits the Minister to carry on mining operations and deal in petroleum.
- 169 Supra n. 153, s. 25 (1) (a).
- 170 Petroleum Act 1958 (Vic.), ss. 21, 47 (2); The Petroleum Acts 1923 - 1967 (Q'ld), ss. 54, 65 (1); Petroleum Acts 1940 - 1967 (S.A.) ss. 80a, 86; Oil and Gas Conservation Act 1969 (Alta.) s. 39. Queensland, South Australia, and Alberta have specific provisions regarding enhanced recovery.
- 171 Supra n. 153, ss. 25, 26.
- 172 Id., ss. 25 (1) (e), 28.
- 173 Cf. The Petroleum Regulations (Land) 1966 (Q'ld), ss. 131, 132; Oil and Gas Conservation Regulations 1969 (Alta.), ss. 200, 508, 509.
- 174 Petroleum Amendment Act 1962, ss. 2, 59 - 62.
- 175 Petroleum Act 1937, ss. 31, 42(e); Petroleum Regulations 1939, ss. 20 - 24.
- 176 Queensland did so in 1966 with the help of a leading Canadian Oil and Gas Lawyer, Mr. E. Lewis of Imperial Oil Ltd., Calgary, Alberta. The Nigerian Act also has drilling and production regulations. The Australian Federal Government is soon to promulgate regulations for the Australian Offshore Common Code.
- 177 See for instance the Minister's powers under the Victorian Petroleum Act 1958 ss. 21, 47 and Queensland Petroleum Acts 1923-1967, s. 49.
- 178 Oil and Gas Journal, March 2, 1970, pp. 32 - 33.
- 179 Lewis G. Weeks, Assessment of the World's Petroleum Resources and Exploration Review, Exploration and Economics of the Petroleum Industry, Vol. 4, (Houston 1966), 115, 127. The New Zealand Government paper (see infra n. 183) stated that hydrocarbon accumulations which may be present can therefore be expected to be within the Young Cretaceous-Tertiary basins unconformably overlying the older series above and below sea



level on both the west and east sides of the central ranges.

- 180 Sander, What's Ahead for the International Offshore? World Oil, July 1970, pp. 83 - 88.
- 181 Id., p.84.
- 182 It may be observed that the growing strength of the OPEC group will reflect in higher costs for the industry and consequently prospective areas such as New Zealand will become better economic propositions for development.
- 183 The Continental Shelf Act (N.Z.) 1964, s. 2. The following year New Zealand ratified the Convention on the Continental Shelf adopted by the 1958 Geneva Conference on the Law of the Sea: Recent Developments in the Petroleum Industry of New Zealand, Fourth ECAFE Symposium, Canberra 1969.
- 184 Supra n. 179, p. 127.
- 185 Offshore drilling rigs daily expenses run to U.S. \$10,000 - \$15,000. Shell budget the Maui Appraisal program at \$10 - 12 million.
- 186 Petroleum Amendment Act 1965, s. 2.
- 187 Petroleum Act 1937, ss. 8, 8A; Statutes Amendment Act 1941, ss. 61, 62.
- 188 Petroleum Amendment Act 1967, s. 2 (a)
- 189 Id., s. 2 (b), (c).
- 190 New Zealand Weekly News, April 28, 1969, p. 3.
- 191 Since the decision of the Canadian Supreme Court in the Offshore Minerals Reference, (1967), 65 D.L.R. (2d) 353, the Canada Oil and Gas Land Regulations, SOR/61-253, have been of legal effect in offshore areas of Canada. Agreement has yet to be reached on the lines dividing the jurisdiction of the federal government from that of the Canadian provinces.
- 192 Thompson, Australia's Offshore Petroleum Common Code,





(1968) 3 U.B.C.L.R. No. 2, 1, at p. 4.

193 United States Outer Continental Shelf Lands Act (1953 67. STAT. 462).

194 Petroleum (Production) Regulations (U.K.) 1966, sch. 5, s. 3.

195 Supra, n. 193, s. 11.

196 Nigeria, Decree No. 51, 1969.

197 Canada, Oil and Gas Land Regulations (SOR/61-253).

198 Supra n. 196, s. 14.

199 Petroleum (Submerged Lands) Act 1967 (W.A.), s. 28.

200 Nigeria, Petroleum (Drilling and Production) Regulations 1969, s. 2.

201 Supra n. 199, s. 31.

202 Supra n. 192, p. 20.

203 Supra n. 199, s. 31; supra n. 149, s. 36(3).

204 Supra n. 196, sch. 1, ss. 3, 6.

205 Supra n. 194, sch 5, s. 4.

206 Supra n. 197, ss. 42, 44, 82, 83.

207 Supra n. 200, s. 12.

208 Supra n. 193, s. 8(b): a compact area not exceeding 5,760 acres (about nine square miles)

209 Supra n. 200.

210 Supra n. 199, s. 46 (2).

211 Supra n. 194, sch. 4, s. 2.

212 Supra n. 199, s. 53.

213 Supra n. 194, sch. 4, ss. 3, 5.



- 214 Supra n. 196, sch. 1, ss. 10, 13.
- 215 Supra n. 193, s. 8 (c).
- 216 Supra n. 197, ss. 55, 62, 63. If these terms are changed, it is likely that revised regulations will provide for a ten year lease and thereafter so long as production continues on producing areas.
- 217 Supra n. 196, sch. 1, s. 12 (1).
- 218 Under regulations promulgated by the Secretary of the Interior, all oil and gas leases on the Outer Continental Shelf are obtained by the highest responsible bidder offering by sealed bid. The bid may, at the Secretary's discretion include a cash bonus with a royalty fixed at not less than 12½ per cent in amount or value of the production saved, removed, or sold, or on the basis of royalty at not less than 12½ per cent, with a cash bonus fixed by the Secretary: Supra n. 145, s. 8 (b).
- 219 Livermore, supra n. 25, pp. 13-14. Marine pollution is undergoing detailed scrutiny before an Australian Royal Commission on The Great Barrier Reef and the complex ecological issues raised by petroleum activity near this natural phenomenon.
- 220 The U.S. closed down production in Santa Barbara and the Gulf of Mexico, Canada in the Strait of Georgia and Lake Erie.
- 221 Gower Federal Service: Outer Continental Shelf Lands, 1967, ss. 250.34.
- 222 Id., ss. 250.41.
- 223 Id., ss. 250.43.
- 224 United States: U.S. v. California, 332 U.S. 19 (1947); U.S. v. Louisiana, 339 U.S. 699 (1950); U.S. v. Texas, 399 U.S. 707 (1950). Canada, supra n. 143. Australia, supra n. 144.
- 225 The principles for sharing offshore acreage as suggested by the 1958 Geneva Conventions have been the subject of argument before the International Court of Justice:



W. Germany v. Netherlands, February, 1969.

226 There are variations in the exact place where jurisdiction is taken over offshore petroleum operations overseas. The United Kingdom has specified the low-water line along the coast of the mainland of Great Britain, the Isle of Wight, Anglesey and Holy Island as dividing landward areas from seaward areas. The lines dividing landward areas from seaward areas at the estuaries, rivers, harbours, bays and other specified places are stipulated in tables that join low water line points. The American legislation, which is in effect a compromise of the federal government victory in the offshore submerged lands litigation foreclosed by the Supreme Court decision in United States v. California, 332 U.S. 19 (1947), has drawn a line three geographical miles distant from the state coastlines and regulates petroleum operations from this point seawards, thus the title Outer Continental Shelf. The Supreme Court of Canada has expressed its view in the Reference re Ownership of Offshore Mineral Rights (1968) 65 D.L.R. (2d) 353 that Canada has the property in, the right to explore and exploit, and the legislative jurisdiction over the sea bed and subsoil seaward from the ordinary low water mark on the coast to the outer limit of the territorial sea of Canada, and the further rights to explore and exploit and exercise legislative jurisdiction in relation to mineral and natural resources beyond the territorial sea of Canada to a depth of 200 metres or such exploitable depths, as against the province of British Columbia. The Australian Offshore Code similarly draws the line at the low water mark and geodesic lines running closely parallel to the shorelines.

227 The operator's plaintive cries that his offshore operations are expensive should not be allowed to cloud the other economic factors of offshore petroleum production. While well costs may be high, the production cost per barrel of petroleum is the figure that is looked to in the final analysis.

Dr. Thompson points out additional indirect savings of offshore operations, viz. no diverse ownership patterns, no surface occupants, and fewer politically sensitive offshoots. These indirect cost factors may be enormous,





and he suggests, for example, that in Alberta perhaps 2 out of 3 wells drilled have been unnecessary to produce the oil.



## CHAPTER IV

### POLICY ISSUES

#### Introduction

The petroleum laws of North America essentially concern the search for and production of petroleum. Little legislative interest is evinced outside this basic issue other than in protection of the environment, and indeed the anti-pollution and conservation matters may be subject to separate legislation. Where the ownership of petroleum is invested in the state, the public's interest is represented by fiscal measures, principally in royalties. Rental rates, administrative fees and bonds, and bids for relinquished acreage add to the public revenues. Other fiscal measures such as income taxation and customs legislation do not come within the ambit of oil and gas legislation although such factors will be important considerations to operators.

But not all the world's petroleum is found in North America. Most of today's oil production comes from the Middle East and Africa, where the nations, in large part, fall into the category of economically underdeveloped. The oil and gas legislation there reflects different political,



social, and economic attitudes from those in North America and other "developed" areas. The governments are concerned with their country's economic and social development. Consequently, their oil and gas legislation shows a concern for issues other than the direct monetary returns that can flow from the production of indigenous oil and gas. Specific undertakings from an operator may include the supply of local petroleum consumption, refining all production in the host state, employment and training of local peoples in the oil and gas industry, percentage employment of nationals, the building of roads, housing and other facilities in undeveloped areas, and the participation of government or national oil companies in various stages of exploration and exploitation of petroleum found in the host state. In varying degrees these matters are policy issues and can be subject to bargain between the investee state's government and the intending petroleum operator.

While New Zealand has less need for such indirect aid than some countries, it may be said that, industrially, New Zealand is underdeveloped. The foreign nation's approaches to solving such problems are therefore of interest. It is proposed firstly to discuss the direct fiscal aspects of the Petroleum Act, and then to consider the issues of government participation, the obligation to supply domestic demand, and the training of nationals.





Financial Provisions of the Petroleum Act

Petroleum legislation varies in the methods by which it extracts revenues from oil companies. Administrative fees, lump sum payments of varying nomenclature (bonus premium, deposit, guarantee), rentals, royalties, and work obligations defined by a guaranteed expenditure, are the principal methods by which the public shares in the financial benefits of petroleum exploitation. The payments are part of a wider spectrum<sup>1</sup> and while considered separately, are interrelated. From the point of view of the operator they are all expenses unless credits are given in some way. Also, the fiscal provisions of an oil and gas statute can have some influence in making a sedimentary area more attractive to exploration and exploitation. Thus, areas that are already proven need not offer incentives to obtain investment in their exploratory activity: the greatest incentive, as the recent Prudhoe Bay strike illustrates, is discovery of petroleum. Until that stage however, exploration capital may be drawn to an unexplored area if the exploration terms, among other factors, seem competitive with other unexplored areas. The 1937 legislators were not unaware of this issue for the fiscal terms of the Act of that year were and are nominal.

The Act follows a common form in prescribing fees, securities, rentals and royalties. Paltry fees, which would not appear to contribute much to administrative costs, are prescribed for application, registration, issue, and renewal of prospecting and mining operations.<sup>2</sup>



A deposit of up to \$2,000 as security for compliance with the conditions of the license is required before a prospecting license will be issued.<sup>3</sup> In view of the capital intensity of the industry, the figure seems minimal. The bond can be used for compensating land owners affected by surface operations, but as far as being a security for compliance with license terms, \$2,000 seems a small price.<sup>4</sup> It is doubtful if the bond now serves the purpose that it served in 1937, that of keeping the unqualified from entering the exploration field. Ministerial discretion over an application may have acted as a second bar.

Rental fees are lenient. A prospecting license area rental is computed at a rate of fifty cents per square mile annually, a rate comparable to other unexplored petroleum areas studied. Where an area has been proved, rentals increase, e.g. Alberta provides a graduated rental per acre per year of \$0, \$64, increasing to \$128. Such provisions can serve to prod exploration activity for liberal expenditure credits and grouping privileges can allow the rental to be offset, if the equivalent value is in fact spent on exploration.<sup>5</sup> Once a production lease is obtained the New Zealand Act imposes a rental fee of \$20 per square mile or part thereof.<sup>6</sup> The increase in rental reflects the greater value of the discovery area but even so the production license rental is generously small. In Alberta, where there are large lease areas, the rental revenue provides a steady income to the public account (in the order of millions of



dollars) which fluctuates with total holdings of producing tenements.<sup>7</sup>

The New Zealand Act's royalty provisions, as has already been noted, are rather curious. Royalty rates are specified for both prospecting and mining licenses. The drafting appeared to follow the Australian and English precedents, but it would seem that insufficient notice was taken of the distinct differences between production that might occur during the exploration phase and steady production from a developed reservoir. Royalties are payable on petroleum sold. The royalty is computed at the rate specified in the license on the selling value<sup>8</sup> of all crude petroleum, casinghead spirit, and natural gas that is produced from the land comprised in the license. The actual rate is to be specified by the Minister, and in no case is it to be specified for different areas in a license. A royalty rate specified in a prospecting license is apparently not to be altered when the operator obtains a mining license.

In the case of offshore operations, there are some differences in the tenement's fiscal obligations. If a prospecting license is taken out exceeding two hundred square miles, a deposit of between two and twenty thousand dollars may be required of the offshore operator.<sup>9</sup> The bond amount indicates firstly the greater costs that are entailed in offshore operations and prevents the small speculator entering the field too hastily, and, secondly, the costs of offshore oil pollution, where, judging by







overseas disasters, \$20,000 would be but a small part of the costs of an ocean "clean-up". Also, it should be noted that in the offshore licenses, the Minister can require the expenditure of a specified sum within a specified period on prospecting operations.<sup>10</sup>

The New Zealand Petroleum Act's fiscal provisions seem generous and in comparison with the other areas studied, the fiscal provisions show an appreciation of the need to attract foreign petroleum exploration capital to New Zealand. Indeed, in view of the current activity on the New Zealand scene, it may be said that the legislation is achieving its object. The operator is able to hold the exploration areas at little expense, and the production phase terms seem very generous.

However, some reservations must be expressed. The Act's fiscal terms are now thirty-three years old and have remained unchanged, a somewhat remarkable feature in view of the changed value of money in the interim. Also it may be questioned if the royalty provisions, which may be said to represent the public's investment in the success or failure of a petroleum venture, do protect the public's interests in the nation's petroleum resources.

The royalty rate represents the public interest in the success of the exploration and exploitation of her natural resources. Royalties can be imposed in various ways, usually at the well head during production or at a selling value prescribed by legislation.<sup>11</sup> The royalty rate



may be fixed or it may be on a sliding scale or subject to the controlling authorities' discretion. The soundest prescription appears to be that stated in Alberta, where cognisance is taken of the fact that petroleum production costs are a factor of the well reserves and the producibility of the reservoir. A sliding scale from five per cent to sixteen and two thirds per cent is scheduled.<sup>12</sup> Thus a well with high reserves and a high rate of production can pay a royalty rate of up to sixteen and two thirds per cent of total production. Conversely, a well with dwindling reserves and reduced production can pay a very low royalty, recognition thereby being given to the fact that a depleted reservoir cannot be produced as inexpensively as one with high reserves and therefore the operator is not required to pay as high a royalty rate on his lessening production. A fixed royalty rate of sixteen and two thirds per cent is prescribed for natural gas production, cognisance being taken of the fact that the natural gas production rate is relatively inflexible.

The present royalty provisions of the New Zealand Act seem inadequate in their protection of the public's interest. The rates for production royalty may be fixed before exploration begins. This means that no attention is given to the peculiar attributes of each petroleum reservoir and its rate and type of production. It is submitted that the royalty provisions should be replaced, preferably with a scheme based on the western Canadian models. By prescribing a sliding scale royalty the public will know their possible returns on petroleum production. Also, the operator will know one of his possible production



costs and most importantly, the issue will be removed from the Minister's bargaining table.

Compared to some of the foreign legislation, a noticeable lacuna in New Zealand's fiscal provisions concerns bonus bidding, i.e. tenders made for relinquished acreage. This of course follows from the fact that the only acreage reduction step taken is of the operator's change from a prospecting license to a mining license. Even though the operator may obtain a hundred square mile production license, he may still blanket the exploration area entirely for the Act entitles the prospecting licensee to obtain mining licenses over the whole prospecting area. However, other factors necessitate consideration at this point. Such a scheme is an outstanding incentive provision to an operator for it means he can retain total control over a discovery. The conservation benefits of a single or few producers on a reservoir have been considered above. The issue therefore becomes complicated. If the operators are conscientious in the development of the New Zealand discoveries then it might well be argued that there is no need to change the present provisions. But if tardiness is shown in development of the petroleum resources then a suitable answer would be the introduction of area relinquishment provisions that can allow other operators to develop and produce New Zealand's petroleum prospects. The injection of open market competitive forces would ensure that any complacency







on the part of oil companies enjoying the terms of the present Act was quickly dissipated.

In sum, the New Zealand Act's fiscal provisions are such as to encourage foreign investment for the basic costs are relatively inexpensive. The introduction of more sophisticated and remunerative fiscal provisions has to be carefully considered in relation to the wider investment issue of whether increased fiscal provisions would act detrimentally upon the current local and foreign interest in New Zealand's petroleum potential. The fees could well be raised to support the costs of the agencies that do provide aid and information to the industry. The rental provisions are comparable with other countries incentive conditions, although it is suggested the production acreage rentals could be raised. The royalty provision is open to criticism on two counts, uncertainty and inflexibility. Firstly, the rate to be prescribed in any license is at the Minister's discretion and therefore the royalty rate may vary from license to license. Secondly, a minimum rate of five percent is stated and it is suggested a sliding royalty scale showing an awareness of production economics would be preferable for it would inform the operator of one of his possible production costs<sup>13</sup> and give the public a revenue commensurate with the productiveness of a hydrocarbon reservoir should a good producing field be discovered. Thus possible charges of bias would be avoided and the flexibility inherent in the use of the Minister's discretion would be retained. Cognisance could also be taken in the



differing royalty rates prescribed for liquid hydrocarbons and natural gas as seen in Alberta. The bonus issue is delicate. The financial returns from the introduction of an area relinquishment provision, coupled with bonus bidding would certainly cause heated objection from segments of the industry. But this fact should not prevent careful study being made of the question, care being taken to see the issue is discussed in relation to the factors that can affect the current interest in New Zealand's petroleum prospects. The same edict may be repeated for all the fiscal provisions of the present Act.

#### Government Participation

One of the most controversial policy issues is the matter of government policy toward government participation in indigenous oil exploration and production. In common with many western nations, the New Zealand government's attitude has been to leave oil exploration in the hands of private enterprise. This attitude has been fostered and supported by the major oil companies who argue against public enterprise firstly by pointing to the risk of entering such a speculative field, then to the great initial expenses, and finally to their own extensive capital reserves and technical skills when compared to most governments. Such arguments were accepted in the New Zealand Parliament in the debates preceding the 1937 Petroleum Act.



In his book, The Political Economy of International Oil and the Underdeveloped Countries,<sup>14</sup> Michael Tanzer states that these arguments are not so compelling as depicted. While the oil companies arguments have been echoed by the World Bank and various United Nations bodies,<sup>15</sup> he points out that the major oil companies do have a vested interest in perpetuating the risk arguments. The seven major companies control roughly three quarters of the noncommunists worlds oil reserves, much of it in the low barrel cost area of the Persian Gulf. They also control most of the refining and marketing facilities in oil importing countries.

Thus a discovery of crude oil in an oil importing country can "back out" an importing company's low-cost external supplies of crude oil in favour of indigenous but higher-cost crude oil. If the discovery were made by a government petroleum enterprise, it could involve a complete loss of a market for the companies. If one of the companies were the successful explorer, it could only profit by either increasing its share of the local market and thereby offset the loss of importing cheaper foreign crude oil, or by making a discovery that could compete in cost with the company's Middle East reserves. The major oil companies, however, do realize the need for undertaking some exploration in oil-importing countries, if only to pacify governments looking for the elixir of indigenous petroleum to cure their foreign exchange shortages. Another







reason for the major oil companies actions may be the desire to keep tracts out of the hands of the independent oil companies.<sup>16</sup> The instability of the Persian Gulf area has also spurred interest of the major concerns in alternative supplies.

The various forms of participation by foreign governments in the oil and gas industry are a phenomenon of fairly recent times. The most direct has been the nationalization of a foreign company, as seen in Mexico and Libya. Other countries have erected their own oil companies as instanced by Italy and the ENI company. Large government participation in the capital stock of an oil company is evidenced by the British government participation in the British Petroleum Company and the French government in Compagnie Francaise des Petroles. Direct financial involvement by the Canadian government in the Pan Arctic joint venture has already paid rewards in maintaining interest in the Arctic Islands as a possible major source of world oil reserves.

The changing pattern of the Middle East concession contracts has seen new modes of government participation created, for instance, as in an unincorporated joint venture, or in the joint ownership of an operating company.<sup>17</sup> In these cases it has been the role of the foreign oil company to undertake the exploration effort by itself and to agree to a certain exploration expenditure over a defined period. If no commercial discovery eventuates in that



time, the enterprise dissolves. If commercial discovery is made, the government party supports any expenditure made thereafter and provision may be made for reimbursement of exploration expenses. Thereafter division of wellhead production may be on a fifty/fifty basis, with the host government exacting royalties on exports. A less burdensome form of participation (as far as the oil company would be concerned) is an agreement whereby the oil company agrees to offer to the government or its nationals a percentage of the venture, for instance in shares, upon discovery of oil in commercial quantities.

Section 27 of the 1937 Petroleum Act permits the Minister of Mines, on behalf of Her Majesty, to carry on mining operations, and also to carry on the business of acquiring, disposing of, and dealing in petroleum produced in New Zealand and any products of such petroleum. The government has not shown much interest in availing itself of these provisions to the present time other than in acquiring a small interest in the Whangarei refinery. Conservative elements would probably prevent speculation of public funds in the exploration phase of the industry, although it is well known that the costs of preliminary reconnaissance are relatively low,<sup>18</sup> and can substantially reduce the risk element in petroleum activity. But, it is submitted, thought could be given to government participation in some form of joint venture. As briefly indicated above, the variations in form are numerous. One of the



independent oil companies might be amenable to entering a joint venture with the government, if the company was able to explore prospective acreage on mutually advantageous terms. An agreement whereby the oil company undertook responsibility for all exploration work including the supply of risk capital, equipment and know-how for production operations, and was aided in establishment of marketing and sales policies would be similar to some joint-venture agreements seen elsewhere.<sup>19</sup> The finding of "commercially exploitable reserves" on a "commercial discovery" would bring the joint venture to life and end the oil company's sole risk operations. Such an agreement could also allow greater participation in the profits of the discovery by the public for it could be agreed that production be shared equally, while other revenues could accrue from rentals and royalties.

At present it can be observed that there is no government participation in the exploration phase of the oil industry. It is submitted that a progressive government should be considering some change in this attitude. The Canadian participation in Pan Arctic is already showing results and provides an interesting precedent for other members of the Commonwealth. While the major corporations presently operating in New Zealand might not look favourably on joint ventures with independent oil companies, the public







interest demands that people who are willing to vigorously conduct exploration and exploitation operations be given every encouragement. Government participation in a joint venture could be a mode of encouragement, and also act as a prod to the major oil companies in their activities. As Mr. Avery said in his paper presented to the Third ECAFE symposium on the Development of Petroleum Resources:

There is often intense rivalry and offsetting activity among majors, government-backed companies and independents, so that the juxtaposition of explorers, such as in the North Sea, or Libya, or Queensland, is the best guarantee that an area will get the search warranted. 20

While oil production in New Zealand is still a possibility rather than a probability, further thought should also be given to government participation in a marginally economic discovery. What may be marginally economic to a major oil firm may be marginally profitable when looked at in the light of government parameters. In sum, section 27 should be expanded to give government room in which to manoeuvre.

#### The Obligation to Supply Domestic Demand.

Self sufficiency in indigenous oil production is the first major target an oil importing nation will strive for. The economic advantages are apparent, namely, improved balance of payments through savings on imported petroleum,<sup>21</sup> and if there is sufficient production, foreign exchange earnings on exports. Stimulus is given to secondary industries



such as refineries and petro-chemical plants. A common provision found in foreign legislation is that which obliges a successful operator to satisfy domestic petroleum requirements before he exports any petroleum or petroleum products.

New Zealand at present imports about two and one half million tons <sup>22</sup> of crude and partly refined oil annually for refining by the New Zealand Refinery Company Ltd. at Marsden Point. The refinery was constructed by a consortium comprising the principal distributors of petroleum products in New Zealand, namely Europa Oil (N.Z.) Ltd., Caltex Oil (N.Z.) Ltd., Shell Oil New Zealand Ltd., Mobil Oil New Zealand Ltd., Atlantic Union Oil Company Ltd., and B. P. (New Zealand) Ltd.. It went on stream in 1964. New Zealand therefore has aligned herself, a little belatedly, with the international practice of locally processing foreign crude oil and thereby raising the domestic content in petroleum product prices.<sup>23</sup> The Kapuni natural gas strike which has recently come on stream in the North Island of New Zealand, is to supply some condensate for Marsden Point, and present indications suggest the Maui discovery could supply larger quantities.<sup>24</sup>

There are various modes that can be employed to ensure internal petroleum requirements of a country are satisfied before an operator may begin export. There could be specific provision that domestic crude or refined petroleum



requirements be satisfied before any export, or that the local refineries be firstly supplied by any indigenous petroleum production. There may be provision enabling government to order increased production and refining as required for national consumption, where facilities are available.

Government may be given the prior right to buy any local petroleum production or part thereof, or to buy the whole or part of any refined products. Unusually there may be provision for government to order exploitation of an economic field, whereby government agrees to pay the operator such amounts as necessary to provide a reasonable return on the operator's investment.<sup>25</sup>

The New Zealand Act does make some provision for supply of domestic petroleum needs. Section 13 (1) states that the Minister may:

. . . direct that the licensee refine or cause to be refined in New Zealand such part of the crude petroleum as may be required for the manufacture of those products required for use in New Zealand.

The Act requires that the Minister consult with the licensee and satisfy himself that products required for use in New Zealand are able to be manufactured economically in New Zealand by or on behalf of the licensee from crude petroleum produced by the mining licensee.

This provision was a dead letter until the Whangarei refinery was constructed.





If the Minister does give a direction pursuant to section 13 (1):

. . . the Minister may give a further direction prohibiting the export from New Zealand of any crude petroleum directed to be refined and all or any of the products required for use in New Zealand manufactured from any such petroleum: section 13 (4).

The follow-up provision would give little trouble unless the licensee and the Minister disagreed as to the suitability of the crude petroleum as feedstock for a New Zealand refinery, and in such event the matter could be referred to arbitration pursuant to Section 38A of the Act.

As can be seen the Act presently has no express provision that allows the Minister to order crude petroleum be offered for local consumption. Rather the Act provides for consultation wherein the Minister is to be satisfied local refining would be an economic proposition. It is submitted that future legislation should at least grant a right of first refusal to the Crown followed by a clear provision for export of such petroleum as circumstances warrant.

The successful petroleum explorer in New Zealand would be assured of a guaranteed local market at economic prices for the government of the day has stated that even if a marginally economic field were discovered:

We would agree to pay a minimum price that is closely related to world values. This might be near the comparable landed price of imported oil into New Zealand. 26



A common processor provision was enacted in 1962<sup>27</sup> to allow the Minister of Mines to direct the owner of a refinery capable of refining petroleum to refine petroleum owned by a mining licensee who does not have any facilities. A proviso to this direction is that the refinery owner and others lawfully using the refinery must not be prejudiced in the proper and efficient operation of the refinery by such ministerial order.

There is no emergency requisitioning power in the 1937 Act, although there has been such provision in earlier legislation.<sup>28</sup> The section gave government prior rights to any petroleum being produced in New Zealand in time of emergency, and in time of war, power was given to take over management and any plant. It might be argued that such provision is not necessary in a petroleum leasing statute and that Emergency powers can effect any such purpose. However, emergencies can be of differing aspects and intensities. It is submitted that some requisition power could be usefully included in the Act with provision for compensation and for a proper hearing in the event of any dispute in the exercise of such power.

In sum, section 13 provides for the domestic needs of New Zealand for refined petroleum products. The section is not as preemptive as some seen in foreign legislation,<sup>29</sup> nor does it provide specifically for restraint of export of crude petroleum or natural gas, although this could be



achieved indirectly. It should be remembered that the export of natural gas could be one of the results of the Maui discovery, and machinery should be available to regulate such export in terms clearly understood by government and industry. Preemptive provisions in time of emergency could also be given consideration.

### The Training of Nationals.

A not uncommon feature of petroleum legislation, especially in the developing countries, is a requirement that the local inhabitants be employed in enterprises established with foreign capital. This feature is one of the most valuable aspects of private foreign investment in underdeveloped countries, and in the highly technological petroleum industry, results in a significant contribution to a nation's skilled manpower, so necessary for rapid economic growth. Over-emphasis on local labour participation can, however, act as a disincentive to oil companies should such measures be formulated without regard to the educational standards and quality of the local labour of a country.<sup>30</sup> The oil companies have provided educational schemes and scholarships to surmount the educational barriers. However, it is possible that legislation requiring employment of a certain minimum percentage of local personnel be employed or alternatively, a certain maximum of foreign personnel after a number of years<sup>31</sup> could give rise to problems.







New Zealand is fortunate in that she is not afflicted with any shortage of graduates or the facilities for training those needed for the present level of activity in the mineral industry.<sup>32</sup> However, the Minerals Committee of the National Development Conference stated:

Some petroleum prospecting companies have reported a shortage of skilled manpower for drilling, logging, and other skills peculiar to the petroleum industry. This is not surprising in view of New Zealand's size and past requirements in this field but may need correction if major oil and gas discoveries are made. 33

The Report also noted that certain specialists in the mineral industry, including petroleum engineers, had not found many opportunities for continuous employment in New Zealand. The present exploration activity may alter this situation, and initially perhaps, positions of skill could be filled through selective immigration.

The major oil companies favour a policy of employing nationals, a policy perhaps of appeasement for foreign experts are not always kindly received. It is desirable that the oil companies ensure that the opportunity for work in New Zealand for suitable New Zealand graduates is readily available, and thereby prevent graduates proceeding overseas for employment in the petroleum industry. Alternatively if the positions are not open, the oil companies and government could combine in providing overseas training for New Zealanders in the petroleum industry. To have a large number of skilled New Zealand graduates in the managerial ranks of the New Zealand



oil and gas industry in 1975 would represent the soundest investment of all in ensuring all possible steps were being taken to explore and develop New Zealand's hydrocarbon potential.

It is debatable whether it is necessary to pass specific legislation to ensure that opportunity is open for New Zealanders in her indigenous oil and gas industry. However, the issue could become critical. The responsibility rests with government to forestall any situation whereby the most valuable natural resource in New Zealand is developed exclusively by foreign personnel.



## FOOTNOTES

### CHAPTER IV

- 1 Taxation, customs, exchange, company laws, and commercial laws can also affect a petroleum company's revenues. While such legislation is outside the scope of this paper it is proposed to consider such topics briefly in Chapter V. The public benefits from an indigenous oil industry can also include foreign exchange savings affecting balance of payments, industrialization, and socio-economic development.

The total payments made under the petroleum leasing statute may be credited against taxation levies. The field of oil and gas taxation law is complex. Many aspects are under close scrutiny in the United States at the present time.

- 2 Petroleum Regulations, 1939, S. 4.
- 3 Petroleum Act, 1937, S. 6.
- 4 The Australian Offshore legislation has provision for daily fines of \$2000.
- 5 E.g., Canada Oil and Gas Regulations, SOR/61-253, Ss. 81-84.
- 6 Supra, n.3, S. 11.
- 7 Thompson, The Australian Offshore Common Code, (1968) 3 U.B.C.L.R., No. 2, 1, at p.23.

The revenue from lease rentals in the fiscal year ending 31 March 1968 was \$27,195,304.50: Alberta, Dept. of Mines and Minerals, Nineteenth Annual Report, p. 16. Supra n.4.

- 8 S. 12 (4):

For the purposes of this section the selling value of any crude petroleum, casinghead spirit, or natural gas shall be such value as may be agreed upon by the Minister and the licensee, or in default of agreement, as may be fixed by arbitration under the Arbitration Act 1908.

- 9 Petroleum Amendment Act, 1965, S. 3.





- 10 Id., S. 2 (1)(a).
- 11 Nigeria, Petroleum (Drilling and Production) Regulations, 1969, S. 60. Nigeria provides for a "posted price", in this instance, being the price free on board at a Nigerian port of export, or if delivered to a Nigerian refinery, at a price approved by the Chief Petroleum Engineer.
- 12 Alberta, Petroleum and Natural Gas Regulations, (Alta. Reg. 80/62).
- 13 High royalty rates relative to high production rates are not considered disincentives by the industry.
- 14 Tanzer, The Political Economy of Oil and The Underdeveloped Countries, 1966, Chapter 10. Also see Hartshorn, Oil Companies and Governments, 1967.
- 15 Tanzer, id., 119-123.
- 16 Id. pp. 132-133.
- 17 Cattan, The Evolution of Oil Concessions, 1966, pp. 127-146.
- 18 Supra, n. 15, pp. 125-126.
- 19 Mughraby, Permanent Sovereignty Over Oil Resources, 1966, pp. 79-82.
- 20 Avery, The Odds in Oil Exploration, A paper presented to the Third Symposium on the Development of Petroleum Resources of Asia and the Far East, Tokyo, November, 1965.
- 21 The total value of petroleum and petroleum products imported into New Zealand for the years ending at June 1967, 1968, and 1969 were (N.Z. \$, c.i.f.) 56, 712, 472; 62, 859, 037; and 72, 771, 403. Of these figures, crude and partly refined petroleum imported comprised in value for the respective years (N.Z. \$, c.i.f.) 35, 027, 254; 40, 165, 329; and 46, 253, 988. The figures for 1969 are provisional. Statistics of External Trade, Department of Statistics, Wellington.

The New Zealand Department of Industries and Commerce estimates that if domestic crude oil was substituted for all imported refinery feedstocks, the annual savings in foreign exchange would be c. N.Z.\$30 million. If refinery capacity were doubled, as is proposed, and domestic crude fully supplied the refineries, foreign exchange savings would be at least \$70 million: correspondence with Department of Industries and Commerce, 10 November 1969.



- 22 New Zealand imported 2,450,180 tons of crude and partly refined oil in 1968, and 2,703,091 tons in 1969. Crude oil comprised 1,519,956 tons of the 1968 total and 1,658,025 tons of the 1969 total: supra, n. 21.
- 23 As early as 1948 the United Kingdom officially announced its policy of preferring domestic refining to save foreign exchange, and in the White Paper on Fuel Policy (Cmd. 2798 H.M.S.O. 1965) the United Kingdom government made it clear that it expected all refining to take place in the country as soon as practicable: Penrose, The International Petroleum Industry: The Large International Firm in Developing Countries, London (1968), p. 224, n.3.

The movement to indigenous refining can be seen in the fact that in 1950 oil importing underdeveloped countries were consuming about 44 million tons of refined oils annually, only 20 million tons being produced indigenously. By 1965 the consumption level had risen to 145 million tons, and over 83 per cent of the products were refined indigenously: Tanzer, supra, n. 14. p. 136.

- 24 Test results for the third Maui appraisal well revealed 45 MM cfd. of gas and 1,500 b/d of condensate from an upper zone at about 9,000 feet and 42.5 MM cfd. of gas and 2,500 b/d of condensate from a lower zone at about 10,000 feet: Oil and Gas Journal, July 27, 1970, p. 184.

It may well have been the hope of some of the refinery consortium owners that they might be able to refine their own local production, and certainly the chances of the Shell consortium have considerably improved. Government considered that this might raise some problems as to the relation between the price at which indigenous oil would be sold to the refinery and the prices paid for imported crude oils: Second ECAFE Symposium on Petroleum Resources, Vol. II, p. 287.

- 25 Olisa, Oil and Gas Rights in Africa, (unpublished thesis, University of Alberta, 1967) p. 132, where the author cites Senegal and Tunisia as countries able to impose such obligations.
- 26 The late Mr. T. P. Shand, then Minister of Mines, New Zealand Weekly News, April 7, 1969, p. 3.
- 27 Petroleum Amendment Act, 1962, S. 2.
- 28 Mining Amendment Act, 1914, S. 11.





- 29 Alberta, for instance, imposes, the following condition on operators in clause 6 of the Standard Petroleum and Natural Gas Lease:

The lessee covenants, and it is an express condition upon which this lease is granted, that natural gas produced from the location shall be used within the Province of Alberta, unless the consent of the Lieutenant Governor in Council to its use elsewhere has been obtained.

Upon any breach of this covenant and condition occurring, whether with or without the consent or knowledge of the lessee, this lease, in so far as it relates to natural gas within and under the location, shall forthwith be terminated, shall become null and void, and shall cease to have any further force or effect, and the natural gas within and under the location shall thereupon revert to Her Majesty, freed and discharged from any interest or claim of the lessee and any person or persons whomsoever claiming by, through or under the lessee.

- 30 Nwogugu, The Legal Problems of Foreign Investment, Manchester (1965), p. 13.
- 31 Cattan, supra, n. 17. pp. 92-93.
- 32 N.D.C. Minerals Committee Report, Wellington, May 1969, p. 47. The report noted that about 40 percent of graduates then employed in the mineral industry were educated outside New Zealand.
- 33 Id., p. 48.





## CHAPTER V

## THE FOREIGN INVESTMENT ISSUE

The preceding pages have discussed aspects of New Zealand's petroleum legislation in comparison with current overseas petroleum legislation. It is contended that fresh legislation is needed in order to remedy the apparent deficiencies in the existing statutes. At the same time it is submitted that the legislation can be altered without affecting the attractiveness of New Zealand's petroleum potential as a sector for overseas private capital investment. Firstly, the new legislation would for the most part be providing clearer guidelines for the exploration and exploitation of New Zealand's hydrocarbon resources. New legislation would show government cognisance of the special characteristics of the petroleum industry. The clarifying of the legislation should in turn result in greater government-industry confidence and co-operation. The other premise basic to the contention that new petroleum legislation will not affect the investment climate in New Zealand is the fact that the petroleum legislation is but one of many factors the private foreign investor considers in deciding whether or not to invest in New Zealand's mineral resource potential. That government apparently shares this view



is indicated by the fact that the hard mining legislation in New Zealand has recently undergone revision.

What are the factors that contribute to the foreign investment decision process? There are diverse views held upon the matter and some of these can be shortly considered. In his book, The Legal Problems of Foreign Investment in Developing Countries,<sup>1</sup> Dr. Nwogugu listed the factors as fiscal legislation (discriminatory or confiscatory taxation against foreigners in the investee state), investment control laws of the capital-importing countries (requirements of domestic partnership, labour legislation, ownership and exploitation of land, exclusion of foreign investment from public sectors of the economy, measures relating to operations by foreign enterprises such as screening boards, the local commercial law, restrictions on distribution of profits, exchange restrictions), fear of nationalization or expropriation without compensation, double taxation, and restrictive trade practices. The latter two factors concern the capital exporter who has to also consider both foreign and local legislation. The author also listed some legal incentives such as income tax and profit tax relief, depreciation allowance, customs duties relief, revaluation of assets, tax-free interest on loans, income-tax free salary for technicians, remittance of profits, and tax concessions by the capital-supplying countries as further factors to be considered in the investment decision.



The decision to invest may be complicated and not based on the apparent attractiveness of a certain sector, or its fiscal incentives,<sup>2</sup> or economic theory, but based on commitments created during investigation or the desire to retain a market and so on. Thus the investment decision can be based on several imponderables, and it may be noted that the granting of income tax exemptions by a capital-importing country, is not, as it may be thought an important factor.<sup>3</sup> This contention has been expressed subsequent to a survey<sup>4</sup> of the motivation of private foreign investment in which it was found that:

Foreign investors consider the five government policies favourable to foreign investment to be:

- (1) Establishment of and firm adherence to a national development program.
- (2) Favourable terms for the transfer of profits and repatriation of capital.
- (3) Nondiscrimination against foreign ownership and control.
- (4) Equality of treatment with domestic enterprises.
- (5) Freedom from detailed or burdensome regulations of organization, ownership and management.

It is significant to discover that only two of these items were included by most of the twenty governments in their evaluation of the five most important incentives they offer to the foreign investor:

- (1) Tax relief offered to new enterprises.
- (2) Equality of treatment with domestic enterprises.





- (3) Progressive domestic climate.
- (4) Transfer of profits and repatriation of capital.
- (5) Government-sponsored credit institutions.<sup>5</sup>

Having noted some of the matters that concern the private foreign investor, let us now turn our attention to some of the factors found in New Zealand that may influence overseas investment.

There are various ways in which the foreign investor may choose to invest his funds in New Zealand. Essentially we are concerned with petroleum exploration and exploitation companies rather than portfolio investment. In New Zealand a person may set up a business without incorporating, he may enter a partnership, or he may form a company, either private or public under the Companies Act 1955. No company, association, or partnership consisting of more than 25 persons may be formed for the purpose of carrying on any business that has for its object the acquisition of gain unless legally registered as a company. Part XII of the Companies Act provides for companies incorporated outside New Zealand that are carrying on business in New Zealand. Such companies must, within one month from the establishment of a place of business, deliver to the Registrar a certified copy of the Charter, statutes, or other instruments defining the constitution of the company; a list of the directors; the names and addresses of one or more persons resident in New



Zealand and authorized to accept on behalf of the company service of process and other notices; and a certified copy of the certificate of incorporation. These companies are required to keep accounts in New Zealand relating to their New Zealand business and to register a balance sheet and profit and loss account once in a calendar year. In practice most foreign investors set up a New Zealand based subsidiary.

One reason for so doing is found in the Land and Income Tax Act 1954 and its amendments. Section 2 states that taxation concessions are only available to a petroleum mining company incorporated in New Zealand. Taxation concessions were introduced at the time of the 1937 Petroleum Act. Basically a petroleum mining company's income was deemed to be the amount of dividends paid to shareholders in any year, but the company was not deemed to have derived taxable income in any year unless at the end of that year the aggregate amount of dividends theretofore paid to shareholders exceeded the aggregate irrecoverable expenditure of the company.<sup>6</sup> The New Zealand company engaged solely or mainly in mining for petroleum in New Zealand was thereby given an effective tax holiday until such time as the total dividends paid exceeded the company's total "irrecoverable expenditure", i.e. the amount spent by the company in development work reduced by the selling value of the assets (excluding petroleum under the ground) resulting from that expenditure. In 1958 an amendment to the Land and Income Tax Act allowed New Zealand companies to write off loans, up to a certain



limit, which they had made to New Zealand exploration companies in which they held shares.<sup>7</sup>

Further amendments were made to the Land and Income Tax Act in 1968 and 1969 to cope with new problems. Some companies had been avoiding payment of income tax by simply not paying dividends. Section 152A imposed some limitations on this practice by allowing the Commissioner to deem specified funds (accumulated profits or income of a company, other than funds required to repay the paid-up capital of the company or required for further development or exploration) that have been held by the Company for a period of at least six years to be dividends paid by the company to its shareholders and therefore taxable income. Section 153 (5) was enacted to define "irrecoverable development expenditure", a term which had been subject to differing interpretations. The term now means all expenditure on mining development and construction which exceeds the total of-

- i) the residual value of any assets directly resulting from the expenditure
- ii) the value of petroleum produced but not yet sold, and
- iii) the proceeds of petroleum sold less operating costs other than expenditure on development.

Thus a company which declares dividends and consequently pays tax and then carries on further development work is placed in the same position as another company which carries out the same further development work but does so before paying dividends.<sup>8</sup>







A new section 153 (1) has been enacted to enlarge the group of companies that might qualify for section 153 exemptions. The companies are New Zealand companies (either incorporated in New Zealand or with their Head Office in New Zealand) in respect of which the Commissioner is satisfied:

- a) that their sole or principal source of income is the business of mining in New Zealand for petroleum; or
- b) that their undertaking is, or is to be in New Zealand and comprises or is to comprise solely or principally exploring or searching for or mining petroleum in New Zealand or any development work relating thereto.

Section 153 (1A) is intended to exclude the pure service company from the benefits of Section 153. Farmout type agreements that entitle a well-drilling company to a share of production as the principal mode of reward for the services rendered would also qualify under Section 153 for its share in the risk venture would make it a petroleum mining company.

The above provisions make generous tax concessions to New Zealand companies engaging in petroleum exploration in New Zealand. The risk factor is allowed for by providing that no taxation be paid until aggregate dividends paid exceed the aggregate amount of the company's irrecoverable expenditure. The depletion factor is allowed for by permitting the company to retain profits tax free to be used for further exploration or development.



Other incentive provisions are seen in section 172C (cc) of the Act which excludes petroleum mining companies from excess retention tax, while section 172 (o) states that bonus issue tax is not payable on any bonus issues made by the company to its shareholders, whether they are companies or individuals.

Recent legislation concerning concessions to shareholders (sections 129C, 129BB), taxation rebates for non-resident investment companies (sections 78B, 78C, 78E, 78F), two year tax rebates to visiting experts in respect of approved services on a particular project (section 78K), and capital gains legislation safeguarding a company against tax liability so long as the profit derived is invested in mining activities (section 152B) indicate the expansion in New Zealand's petroleum industry and the government's interest in fostering the growth of petroleum development. The present legislation embodies some of the suggestions made by the Taxation Review Committee (Ross Committee).<sup>9</sup> As was said at the recent Mining Law Conference held at Auckland:

No doubt further improvements are possible, especially in the encouragement of overseas capital and know-how, but New Zealand's tax legislation has gone a long way towards providing the allowances and incentives required to encourage our mining industry. 10

A matter of concern to the foreign investor is legislation governing entry and repatriation of capital.



Overseas opinion on this matter is often misinformed. New Zealand welcomes the entry of investment capital for essential development purposes, especially when accompanied by managerial skills, by new technology or by opportunities for the development of new or existing export markets. A general condition of all foreign investments in New Zealand is that the capital for such investments be provided in foreign exchange through the New Zealand banking system.<sup>11</sup> The Reserve Bank is the principal and initial point of contact for overseas investment inquiries and as such initiates and co-ordinates the official consideration of all overseas investment proposals. Under delegated authority from the Minister of Finance the Reserve Bank administers provisions of the Capital Issues (Overseas) Regulations 1965 and Amendments, the Exchange Control Regulations 1965, the Overseas Takeover Regulations 1964, and the Tax Regulations. A free flow of non-resident capital including capital gains and capitalized profits is normally permitted through the Banking System direct to the country of origin of the capital, subject to two conditions:

- (1) The original funds must have come to New Zealand through the banking system or in some other equivalent approved form.
- (2) The formal approval of the Reserve Bank to the repatriation is obtained.<sup>12</sup>

This policy applies equally to overseas capital invested directly in New Zealand firms and to that remitted for port-







folio investment in stocks, shares, etc. Dividends are remittable, as are royalties, provided the royalty agreement has the prior approval of the Reserve Bank. In sum it may be observed there are few restrictions on the flow of overseas private capital in and out of the petroleum industry in New Zealand provided the formal procedures are followed.

It has not been the New Zealand government policy to extend direct financial aid to the petroleum industry, a policy that may be contrasted with that of Australia.<sup>13</sup> But as with New Zealand's Tasman neighbour the era of direct financial aid now seems past. Full assistance has been given to all those interested in exploring New Zealand's petroleum potential from government departments such as Mines, the Geological survey, and the D.S.I.R. and, as will be noted below, the government's attitude to overseas investors has been hospitable and encouraging.

The National Development Conference listed some other social and political attributes of New Zealand. They include some fiscal elements already discussed:

- (a) Political and economic stability, satisfactory procedures for enforcing contractual agreements, law and order.
- (b) Freedom to repatriate profits, dividends, fees, and capital. Misunderstanding on this point by some potential investors has undoubtedly discouraged interest in New Zealand.
- (c) Rates of mining taxation and royalties are generally favourable compared with overseas, and import and export and export duties are not a problem.



- (d) High average level of education of work force.
- (e) Good communications and transport services.
- (f) Generally New Zealand is an attractive and desirable place to live and social benefits provided by the State are superior to those in most countries. 14.

Of greater import to the foreign investor is a matter revealed in the course of the Mineral Committee's inquiries. Some witnesses indicated there was a fear of price or profit control which could eliminate reward for risk. The Committee's urgent recommendation <sup>15</sup> was that government, in order to intensify the search for petroleum, indicate to exploration companies the method which would be used to price oil if they found it. And the Committee further observed <sup>16</sup> that incentives such as guaranteed local markets with economic prices might stimulate investment in exploration for particular minerals, especially petroleum, which is New Zealand's largest mineral import.

The best stimulant of all, however, is discovery of petroleum. A current example is the effect the Prudhoe Bay discovery has had in giving impetus to the Arctic search for petroleum. <sup>17</sup> Similarly the Kapuni and Maui discoveries by the Shell consortium have infused new life into the search for petroleum in New Zealand. All the issues considered earlier principally aim at proving whether or not there are the mineral resources present that geological factors indicate, and once discovery is made, incentive legislation,



in all its various forms must be reconsidered to ensure the public's interests are properly protected. At the same time the foreign investor's "vested" interests must be carefully considered in the light of the changed circumstances.

This raises a controversial issue, that of foreign capital controlling a nation's natural resources and thereby affecting the nation's sovereignty. It is an emotional issue that has been fiercely debated in Canada and Australia<sup>18</sup> in recent times. The National Development Conference's Mineral Committee observed that:

It seems unlikely that any major overseas mining group will embark on a substantial risk investment in New Zealand unless it holds more than 50 per cent of the equity capital, though many are willing to have minority shareholdings by New Zealand (10 per cent to 33 1/2 per cent). Others, such as the major petroleum companies, are not prepared to offer equity in New Zealand. 19

*New Zealand*  
Distinguished economists have recognized that New Zealand is at a critical point in her history.<sup>20</sup> As Dr. Sutch has argued so strongly, the present urgent need of the imbalanced New Zealand economy is rapid, extensive and deep industrialization. Commercial development of New Zealand's petroleum potential would be a significant contribution to these aims. New Zealand does not have the capital formation processes needed to resolve this crisis, and it is recognized<sup>21</sup> that foreign investment is essential to the rapid development of New Zealand's mineral resources and eventually the achieving of a better balanced economy.







Even in the nine months deliberations of the Mineral Committee there were mineral developments that will result in overseas savings of (N.Z.) \$28,000,000 annually.<sup>22</sup>

It is hoped that such savings will increase to \$47,000,000 by 1978.<sup>23</sup> The biggest lift of all could accrue from the discovery of an offshore commercial oilfield (perhaps saving \$65,000,000 annually by 1978-79), and for these ends direct private foreign investment is the necessary means.

Balance of payments is not the only benefit that accrues from development of New Zealand's mineral and petroleum resources.<sup>24</sup> Even if foreign capital groups do not allow local equity participation, it would, in the words of the Mineral Committee:

....appear better for New Zealand to accept this condition, though this country must try to acquire as high a percentage as it can absorb.<sup>25</sup>

For those who argue the foreign investor is obtaining control of vital natural resources through capital investment, the present legislation governing company takeovers<sup>26</sup> and exchange currency flows<sup>27</sup> can be held out as safeguards, for the legislation allows the Reserve Bank to keep a watchful eye on foreign investors. Recently there has been the suggestion of supplementary safeguards.<sup>28</sup>

In sum, legislation concerning the exploration and exploitation of petroleum in New Zealand can not only serve to show that the Government is cognisant of the need for



modern legislation to govern a dynamic industry, but also serve to remind foreign interests that ultimate political and legal power concerning New Zealand's natural resources rests with the New Zealand Parliament. It is a question, to paraphrase the words of Dr. Thompson,<sup>29</sup> of concentrating not on the restriction of foreign entry into New Zealand's oil lands, but in ensuring that the terms of exploitation offered to developers, whether national or foreign, are in the public interest, not only now, but in the years to come. It is submitted that new petroleum legislation is urgently needed and that a careful foreign investor would not consider the proposed changes a significant disincentive.



## FOOTNOTES

### CHAPTER V

- 1 Nwogugu, The Legal Problems of Foreign Investment in Developing Counties, 1965, pp. 9-35.
  - 2 Yair Aharoni, The Foreign Investment Decision Process, 1966, Chapter 10, The Decision to Invest.
  - 3 Id., pp. 234-242.
  - 4 H. J. Robinson, The Motivation and Flow of Private Foreign Investment, (California: Stanford Research Institute, International Development Centre, Investment Series No. 4, 1961)
- See also Brash, American Investment in Australian Industry, 1966, pp. 34-52.
- 5 Robinson, id., p. 2.
  - 6 Land and Income Tax Act, New Zealand Statutes, 1968, Vol. 4, s. 153. A mining company's taxable income can be reduced by at least 33 1/3 per cent under the tax legislation in New Zealand and can be reduced by a much greater percentage under s. 153: Rowe, Taxation of Mining Companies in New Zealand, Paper presented to Mining Law Conference, Auckland, 1970, p. 79.
  - 7 Id., s. 153A.
  - 8 Inland Revenue Department, Notes for Guidance to Land and Income Tax Amendment Act (No. 2) 1968, p. 21.
  - 9 Rowe, supra. n. 6, pp. 92-93:

The Ross Committee also thought that Section 152 and 153 companies should be taxed on a uniform basis whereunder all costs of exploration, development, normal outgoings and running expenses would be accumulated; the company would not be liable for tax until such time as its gross revenue from sales exceeds the accumulated costs to date; and the taxable income would be chargeable with income tax at a rate equal to two-thirds of the rate applicable to ordinary companies.





Such a basis of assessment would produce results very similar to those of the present legislation, and would remove the somewhat arbitrary element of tax being based on a decision to pay a dividend (subject to Section 152A).

The suggested basis would also be capable of application to individuals and partnerships, and in this regard it should be noted that the Minerals Committee of the National Development Conference recommended that the tax incentives granted to mining companies and investors in mining companies should be extended to individuals and partnerships who prospect or mine.

- 10 Ibid.
- 11 Correspondence with Reserve Bank of New Zealand, 24 December, 1969.
- 12 "Equivalent approved form" means (generally) capital goods imports which were either exempt from import licensing or for which import licenses would have been available.
- 13 Federal Petroleum Search Subsidiary Acts enabled the Australian government to extend some A\$52.1 million aid to private oil companies up to 1967. The subsidies have now been discontinued.
- 14 Minerals Committee Report to the second plenary session, National Development Conference, May, 1969, pp. 38-39.
- 15 Id., p. 39.
- 16 Ibid.
- 17 An interesting point of debate arising from the Prudhoe Bay discovery is the posing of the question whether the Canadian government would have needed to have joined, or consider joining the PanArctic joint venture had the North Slope bonanza been discovered five years earlier.
- 18 Fitzpatrick and Wheelwright, The Highest Bidder, 1965. Gordon, A Choice for Canada, 1966.
- 19 Supra, n. 14, p. 39.
- 20 E.g., Dr. W. B. Sutch, Colony or Nation?, 1966, p. 173.



- 21 Professor Condliffe, The Press, Christchurch, 28 March, 1969, p. 14.
  - 22 N.Z.P.A., Wellington, 26 March 1969. The developments concerned sulphur, iron, steel, and halloysite.
  - 23 Supra, n. 14, p. 11. Additional savings, perhaps some \$34 million by 1978-79, will result from the use of coal, natural gas and geothermal steam.
  - 24 Id., p. 39 - 40.
  - 25 Ibid.
  - 26 Overseas Takeover Regulations 1964 (S.R. 1964/221).
  - 27 Among others, the Capital Issues (Overseas Regulations 1965 (S.R. 1965/157) and the Exchange Control Regulations 1965 (S.R. 1965/158): see comment on same in (1966) 2 N.Z.U.L.R. 90.
  - 28 The Press, Christchurch, New Zealand. Friday, October 10, 1969. The last page reports the introduction of Monopolies and Mergers Bill which was intended to establish a monopolies commission to oversee investment of overseas capital.
- A caveat must be entered here. While government may have knowledge of foreign capital flowing into the country, the statistics are not easily available to the public as indicated by a perusal of the New Zealand Official Yearbook, 1969, pp. 724-740. The Department of Statistics stated in correspondence dated 26 November, 1970, that..."to give information in greater detail would be divulging confidential information."
- 29 Speaking to the Standing Committee on Indian Affairs and Northern Development, Friday, December 6, 1968.



## CHAPTER VI

CONCLUSION

The purpose of this paper has been to discuss the need for revision of New Zealand's present Petroleum Act. The substance of this paper has been expounded in Chapters III and IV and the sole task now remaining is that of drawing the various parts together.

A few words of caution. It must be remembered that while most of the submissions made have been based on current Commonwealth and United States petroleum legislation, that fact does not automatically mean the overseas legislation must necessarily be imitated. Rather the overseas legislation should be closely examined to see if the aspect studied can be usefully employed in new petroleum legislation in New Zealand. This study has been of a general nature, a mere introduction to petroleum leasing legislation. For practical good to flow from the submissions herein, detailed studies of each aspect, perhaps allied with some expert aid (and in this respect it is observed the Australian states have not been averse to drawing on Canadian expertise), are needed before new legislation can replace the 1937 Act.

At the time of the passage of the Petroleum Act 1937, the statute was probably among the most advanced petroleum leasing statutes in the world. But the oil and gas industry is fast moving and foreign legislators have recognized the need for constant reappraisal of petroleum leasing statutes.





Indeed the OPEC states have erected reappraisal into a principle that forms part of the Organization's policy, to wit:

In any event, the terms and conditions of such (petroleum leasing) contracts shall be open to revision at predetermined intervals, as justified by changing circumstances. Such changing circumstances should call for the revision of existing concession agreements.<sup>1</sup>

The New Zealand government has for the better part of this century been one of the most innovative in her legislation. This description has not necessarily applied to what might be called technical (as compared to social) legislation, but it does not enhance such a description when old fashioned legislation is left on the statute books, especially when the legislation concerns the nations single most costly imported resource.

Revision of the present petroleum statute and its amendments should not be left any longer. This paper has touched on a number of the most salient features of the Act that do not stand in a favourable light when compared with similar provisions in other present day Commonwealth petroleum legislation.

In general, the principal submissions fall into three categories which may for convenience be called (i) public interest, (ii) government and industry relations, and (iii) oil play catalysts.

In the public interest group the major submissions proposed concern the length of tenure,<sup>2</sup> the fiscal provisions,<sup>3</sup>



especially the royalty issue,<sup>4</sup> and the suggestions for conservation.<sup>5</sup> Public interest, in a wide sense, covers all the proposals made in this paper, for the public is vitally interested in the development of New Zealand's hydrocarbons. The importance of full exploration and development of New Zealand's petroleum lies at the heart of the need for revision of the present legislation.

Under the heading "government and industry relations" are included the submissions for clearer, modern, detailed legislation, utilizing separate reconnaissance regulations,<sup>6</sup> drilling controls,<sup>7</sup> and a discovery clause<sup>8</sup> to delineate the various permit stages the operator should be expected to pursue. Further, the offshore play should be subject to special consideration and production terms should be strict.<sup>9</sup> New legislation should distinguish oil production from natural gas production.<sup>10</sup>

It has been suggested that the large amount of discretionary power presently held by the Minister of Mines should be deleted.<sup>11</sup> That is not to say there is no place for ministerial discretion in petroleum leasing legislation, but it is submitted that such discretion properly lies in the regulatory or post-regulatory stages when administrative discretion can ensure legislation is applied in a manner cognisant with the particular characteristics of a permit area or petroleum reservoir. The Minister's discretion can presently affect the actual leases and leasing policy,



areas where the rules should be plain and fair to all interested exploration and development companies in the industry. To this end clear technical requirements for explorers,<sup>12</sup> separate permits for different stages of an explorers operations,<sup>13</sup> the utilization of dollar value work programs in place of the present work obligations,<sup>14</sup> and a sliding scale basis for royalty payments<sup>15</sup> would remove some of the present uncertainty felt about the current petroleum leasing statute.

Co-operation between government and industry in formulating new petroleum legislation would be further improved by the Mines Department creating a special Petroleum Authority to oversee petroleum activity in New Zealand.<sup>16</sup> A compliance with laws condition<sup>17</sup> combined with government-industry co-operation on new legislation should ensure the petroleum legislation is kept abreast of technological advancement. Such provision also means the legislation would apply to all permits including those granted before the legislation was enacted.

In a third category fall submissions for loosening up the present oil play in New Zealand. Shorter tenures,<sup>18</sup> area relinquishment<sup>19</sup> during exploration (and on discovery perhaps), work obligations that ensure progress is made annually on the permit areas,<sup>20</sup> and freer disclosure of reconnaissance data<sup>21</sup> are all measures aimed to this end.







The legislators must consider other factors too, such as the recent concern of man for his environment, the ever-improving technology in the petroleum industry, and the policy issues inherent in amending fiscal terms,<sup>22</sup> considering government participation,<sup>23</sup> requiring a given percentage of petroleum personnel be New Zealanders,<sup>24</sup> or insisting indigenous petroleum be supplied to the domestic market.<sup>25</sup>

The advantages of new petroleum legislation, it is contended, far outweigh any possible disadvantages. The industry might argue that vested rights are being overturned, but the short answer is that the industry has enjoyed extremely lenient terms in New Zealand for over thirty years. Another fact is that even the legislation used for comparison in this paper has been undergoing change (in Nigeria, the Canadian federal legislation, and the United States) creating much stricter conditions (such as tighter regulations and more stringent fiscal burdens) than may be found in New Zealand's Petroleum Act. Furthermore, new legislation should not be drafted without industry having a fair opportunity to comment on substantive changes.

New legislation in fact should provide clearer parameters by which the industry develops New Zealand's hydrocarbon resources. The legislation, while more detailed, should also be more responsive to stimuli advocating amendment. Investor confidence should not be disturbed by legislation which basically would be merely aligned with current Commonwealth petroleum legislation.



Historically and economically the 1970's present an important and challenging decade in the growth of New Zealand. An integral part of the countries economic maturation lies with the development of the nation's natural resources and especially petroleum. This development should be guided by legislation that bespeaks the government's awareness in the proper nurturing of a vital energy resource. The government has already stated that discovery of petroleum would lead to reconsideration of existing petroleum. That time has now arrived. It is to be hoped that the opportunity will not be lost.



## FOOTNOTES

### CHAPTER VI

- 1 XVI Conference of OPEC, Resolution No. 90, para. 3.  
Dr. Hasan S. Zakariya has written on this topic: Impact of Changing Circumstances on the Revision of Petroleum Contracts, Middle East Economic Survey, Vol. XII, No. 37, 11 July, 1969.
- 2 Ante, pp. 67-68 and 86.
- 3 Ante, pp. 86-88, 139-146.
- 4 Ante, pp. 86-88, 141-145.
- 5 Ante, pp. 92-119.
- 6 Ante, pp. 55-56. More precise terminology is another aspect: pp. 49-52.
- 7 Ante, pp. 56, 133-134.
- 8 Ante, pp. 79-80.
- 9 Ante, pp. 132-136.
- 10 Ante, pp. 90-92.
- 11 Ante, generally pp. 81-92.
- 12 Ante, pp. 81, 108-109.
- 13 Ante, pp. 76-81.
- 14 Ante, pp. 60-62, 70.
- 15 Supra, nn. 3-4.
- 16 Ante, pp. 89-90.
- 17 Ante, pp. 84-86.
- 18 Ante, pp. 67-68.
- 19 Ante, pp. 71-75.
- 20 Ante, pp. 60-62, 70.
- 21 Ante, pp. 55-56.





- 22 Ante, pp. 139-146.
- 23 Ante, pp. 146-151.
- 24 Ante, pp. 156-158.
- 25 Ante, pp. 151-156.



## APPENDIX

PRODUCTION OF OIL AND GAS

It may serve some purpose to shortly describe the characteristics of a hydrocarbon reservoir. Geological theory postulates that petroleum was formed by compression and heat in prehistoric sedimentary rock. The rock stratum must be porous and permeable, (eg. limestone, sandstone) for the hydrocarbons to migrate and coalesce in some form of "trap", ie. a porous rock overlain by an impervious rock cap which prevents further movement of the accumulated hydrocarbons.

The hydrocarbons are usually found in a mixture of gas and liquid as can be illustrated by the following figure:

Chemical Name	Chemical Formula	Under Standard Conditions
Methane	$\text{CH}_4$	Gas
Ethane	$\text{C}_2\text{H}_6$	Gas
Propane	$\text{C}_3\text{H}_8$	LPG
Butane	$\text{C}_4\text{H}_{10}$	LPG
Pentane	$\text{C}_5\text{H}_{12}$	Liquid
Hexane	$\text{C}_6\text{H}_{14}$	Liquid
Heptane	$\text{C}_7\text{H}_{16}$	Liquid
Octane	$\text{C}_8\text{H}_{18}$	Liquid
Nenane	$\text{C}_9\text{H}_{20}$	Liquid
Decane	$\text{C}_{10}\text{H}_{22}$	Liquid

(LPG means at standard temperatures and pressures the hydrocarbon is a gas but readily turns to liquid under increased pressure, ie. liquifiable petroleum gases).

It is also usual to find water in the reservoir rock, common water saturation values being from 10 to 25 per cent although the variation ranges from 5 to 50 per cent.

The hydrocarbon reservoir has several natural depletion mechanisms. Basically, oil flows into a well-bore because it is under pressure and the well-bore provides a convenient low pressure region into which it can expand. The mechanisms are



usually found in some combination of the following: oil expansion, solution gas, gravity segregation, gas cap, and water drive.

Where oil is found with little gas saturation, the oil, being under pressure will expand slightly and flow into the well-bore. Oil expansion drive will only force one or two percent of the oil out of the reservoir.

If there is sufficient gas in solution with oil, the reduction in pressure caused by the well-bore will allow the gas bubbles to expand and help push out the oil. As more and more gas accumulates in the pore spaces, it too starts flowing towards the producing wells, and more gas is produced with the oil. Solution gas drive is the most common natural depletion mechanism and will usually allow recovery of 10 to 20 percent of the original oil-in-place.

Gravity segregation resembles solution gas drive in that gas is released in the reservoir and displaces oil into the well-bore. In this instance however, the liberated gas moves upward in the reservoir rather than out the well-bore, and forms a secondary gas cap on top of the oil (because of the different specific gravities). The gas cap continues to expand with declining reservoir pressure, and thereby helps displace oil into the well-bore. The mechanism is capable of recovering up to 60 percent of the original oil-in-place.

The reservoir may initially have a gas cap and if so, its expansion can only add 5 or 10 percent to the recovery of original oil-in-place. Often however the gas cap drive operates in conjunction with gravity segregation and together can effect recovery of up to 65 percent of the original oil-in-place.

Water drive describes a situation wherein the oil is underlain or is in communication with a large aquifer (a large body of porous and permeable rock in which the pore spaces are filled with water). Water is very slightly compressible, and given an aquifer of 100 to 1000 times greater in volume than the oil reservoir and permeable rock space, the water drive mechanism can be very efficient, capable of recovering as much as 80 percent of the original oil-in-place.

As mentioned, it is common to find more than one of the natural depletion mechanisms in a reservoir. It is the petroleum engineers problem to ascertain the various characteristics of the reservoir and the depletion mechanisms and decide how to place the wells so as to derive the greatest benefit from the natural energy forces in the reservoir. When natural energy mechanisms begin to wane, the injection of gas or water into the reservoir through an injection well can maintain reservoir pressure and by such "pressure maintenance" recovery factors are generally improved.





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